NC STATE UNIVERSITY

James B. Hunt Jr. Library

Programming & Pre-Design

Final Report

August 8 2008
Revised October 24, 2008

Report Contributors:

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“The building should inspire to think, and hopefully act”

1 Executive Summary

The Hunt Library will provide for a new and technologically advanced complex with a comprehensive array of services that will complete the dynamic environment of innovation and partnership that is the Centennial Campus vision. The facility must be a center that includes spaces that will foster collaboration. The synergies that will be created by the collocation of the academic core and the Institute for Emerging Issues, a “think and do tank”, along with the potential for other non-profit entitites, will help create a center where ideas will be shared, evolve and emerge to provide guidance and leadership to our region, state and beyond.

While the overall role of the library has remained the same over time, the form it has taken has evolved to meet the new learning and communicattion paradgms. It is critical that this facility fully incorporate the most advanced thinking as it is conceived and designed.

The new James B. Hunt Jr. Library will serve as both a central library for the Centennial Campus and a representational and work space for policy and humanities resources that include the Institute for Emerging Issues and the Chancellor’s Spaces. There are support services shared among these groups.

The building is intended to have a long life and serve its purpose for many generations to come. It is meant to be open and accessible and highly used by both the students and the public.

The Program was derived through a series of User and Stakeholder workshops to determine their current and future needs for the James. B. Hunt. Jr. Library.

The following summarizes the room program described at the conclusion of this phase.

Overall Gross Area	207,353 gsf
Overall Net Area	139,405 nsf
Library Functions	87,955 nsf, 63.1%
IEI Functions	23,914 nsf, 17.2%
Chancellor’s Spaces	6,769 nsf, 4.9%
Shared Support	7,962 nsf, 5.7%

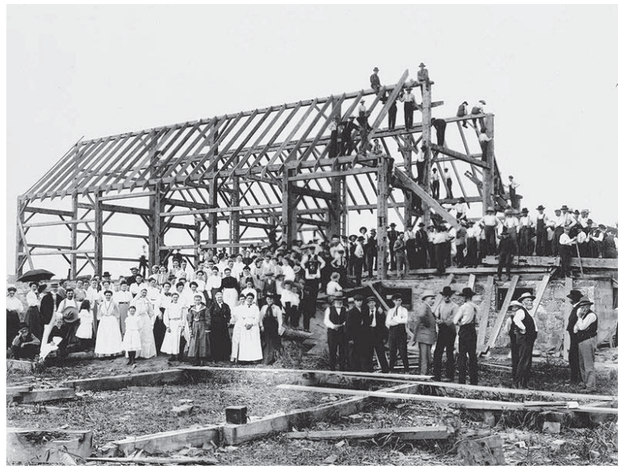
It should be noted that the anticipated target gross square footage remains 205,700, and that this goal will be achieved through refinements during the design phase.
The location for the building is to be at the southwest corner of the Centennial Oval and it is intended to place the entire building in one location rather than bridging over the central axis of the Oval. Because of the size of the building the property limits shown on the Master Plan must be adjusted. Also adjacent functions to the south will have to be modified to accommodate the building and this will be evaluated in the next phase. Future phases will be placed across the Oval at the southeast corner which would likely require bridge or tunnel connections.

The cost of the building has been studied throughout the programming process. Currently the budget for the Hunt Library, stand alone, can be summarized as follows:

Project Budget:	$107,700,000
Construction Budget provided by Management Team:	$70,500,000

Currently the cost per square foot has been estimated by two different sources, the NCSU Capital Project Management Team and by the Design Team Cost Consultant, Davis Langdon. There remains a delta in the two estimates that will require reconciliation during the next phase. Since the Design Team estimate is higher than that of the Management Team this indicates that the design directives will need to be somewhat strict and that a final reconciliation is required. Blended construction costs per square foot at this point in time are as follows for the building:

Construction Budget, Design Team:	$76,700,000
Design Team:	$355/sf
Management Team:	$325/sf



2 Introduction

a. The Design Team
b. The Building Committee
c. Purpose of this phase
d. Purpose of this report
e. Defining the Project

“Courage will be needed to create a design to challenge people’s perceptions.”

Charette, November 2007

“There’s that creative edge that challenges one but lets them appreciate the risk.”

Workshop 1, January 2008

2 Introduction

The Design Team

Snøhetta was chosen as lead designer for the James B. Hunt Jr. Library in November 2007 through a Charette process held at NCSU, competing with five other design teams.
The Programming & Pre-Design Phase began in January 2008 and was completed in August 2008 with the following consultants:

Designer: **Snøhetta**
Executive Architect: **Pearce, Brinkley, Cease + Lee**
Programming: **DEGW**
Sustainability: **Buro Happold**
Cost Management: **Davis Langdon**

The Building Committee

This group is not only the key decision-making body, but will also be actively engaged in the development of the overall project vision, key programmatic needs, and strategies for the Hunt Library. This group, comprised of representatives drawn from a diverse group of stake holders, will provide the essential continuity for the project.

Larry Nielson Provost, Committee Chair
Carolyn Argentati Associate Vice Provost and Deputy Director of Libraries
Anita Brown-Graham Director, Institute for Emerging Issues
Wendy Burkland Lombard Manager, Special Initiatives, Institute for Emerging Issues
James D. Martin Professor, Dept. of Chemistry, and Chair, Faculty Senate
Thomas K. Miller Vice Provost for Distance Education and Learning Technologies Applications
Susan Nutter Vice Provost and Director of Libraries

Ex Officio:
Carolyn Axtman Assistant Director, Capital Project Management
Jack Colby Associate Vice Chancellor for Facilities Operations
Bob Fraser Associate Vice Chancellor for Centennial Campus Development
Michael Harwood University Architect
Marvin Malecha Dean, College of Design
David Rainer Associate Vice Chancellor for Environmental Health and Safety

2 Introduction

Workshop 1, January 2008

Purpose of this Phase

Programming & Pre Design, outlined in this report, is meant to define the parameters for the architectural design which commences with Schematic Design after the successful completion of this phase. While it will evaluate the Master Plan to rationalize the library's siting, the main focus of this phase is to define and reconcile user needs with the available funds for construction, and to define an appropriate cost level which meets the level of ambition NC State has for this project.
A room program and cost model will be established by the end of this phase.
The alignment of cost, quantity, and quality before the design phases begin will help ensure a responsible use of state resources for this important project.

Purpose of this Report

This report encapsulates everything the Design Team has heard from the Building Committee and User Groups during the Programming & Pre-Design phase. Their thinking on key issues for the Hunt building helps formulate the criteria for the architectural design and will be a helpful guide to the Design Team during these subsequent phases.
It also analyzes and summarizes site design issues which will affect the design strategy for the library.

"None of the buildings on Centennial Campus express either their function or nature. It needs something that expresses what's going on inside."

2 Introduction

Defining the Project

The design of the Hunt Library began with the design team 'defining the problem' that the building would solve. This was accomplished through programming workshops with students, faculty, staff and other stakeholder groups, and our ongoing analysis of NCSU, and of key trends affecting research libraries in general. The key findings from these discussions are described below, and can be summarized as follows:

The Hunt Library must:

- Compensate for deficiencies elsewhere on campus
- Be a place for dialogue
- Accommodate a diverse user base
- Enable the growth of engineering programs and meet their unique needs
- Build on the successful precedents already on campus
- Address the unique challenges of the 21st Century Research Library

COMPENSATING FOR DEFICIENCIES

The Hunt Library will be an important building for NC State and Centennial Campus, and is an opportunity to address some of the University's pressing needs. The Hunt Library must urgently provide space for users and collections, which is critical for the functioning of the Library, accommodating growth, and retaining accreditation. As Centennial Campus develops, the Library needs to become a place for students and faculty to connect within and across campuses by addressing the need for meeting, gathering, and common spaces on campus. Finally, Hunt Library should fulfill the need for a focal point or "hearth" on the Centennial Campus and be a signature, iconic structure to reinforce this point.

BEING A PLACE FOR DIALOGUE

As the home of the Institute for Emerging Issues (IEI), the Hunt Library must be a "place for dialogue." It must support the public policy process and the building of consensus through the character of and the relationship between its spaces. The Library's spaces must facilitate discussion and debate, provide easy access to a welcoming, magnetic environment, and function as an integrated system. Meetings and other engagement activities should function smoothly and naturally, allowing attendees to move easily within and between spaces. Finally, the building must represent and demonstrate the leadership of the IEI, the University, and Governor Hunt.

ACCOMMODATING A DIVERSE USER BASE

The location of the Hunt Library creates an opportunity for it to be a nexus for Centennial Campus and the University. With this opportunity comes the responsibility to meet the needs of a variety of users with different and often competing needs. The Hunt Library must be a "university library" while acknowledging that its focus is on NC State's engineering community. The library will house collections used by the engineering students and faculty, who are the major presence on Centennial Campus, and a key area of emphasis for the University and the State. However, the location of the Library on the Centennial Campus means that it will have a wide variety of users beyond the engineering community, including the College of Textiles, students housed on-campus or off-campus on Avent Ferry Road, Centennial Campus partners (who will have faculty-equivalent library privileges), residents of Centennial campus open market housing, visitors to the Institute of Emerging Issues, and occupants of the Chancellor's Spaces and their guests.

ENABLING GROWTH

The Library must accommodate the growth of engineering programs – a key area of emphasis at NC State – as well as meet their specific needs. Beyond housing the physical collections for engineering, the library should provide space for quiet individual work, but also plentiful space for collaborative work since, as Dean of Engineering Louis Martin-Vega noted, engineers are "natural collaborators." The Library should provide specialized facilities that can be shared across engineering disciplines, such as spaces for visualization, and innovative learning spaces for engineering faculty to implement new ways of teaching and learning. The Library itself can serve as an educational tool for engineering students through its building design and technology. Lastly, the Library can further the mission of Centennial Campus to bring University and industry together – for events, research, and collaboration.

BUILDING ON SUCCESSFUL NC STATE PRECEDENTS

The Hunt Library should build on the successful precedents of recently developed facilities at NC State, especially the Learning Commons at DH Hill Library. The lessons learned through the development and use of the Learning Commons should be applied to the Hunt Library, and can be further studied as the design of the Library progresses. The Commons capitalizes on its crossroads location to bring students and faculty together. It provides a variety of settings for research and study, including a mix of quiet and lively, individual and collaborative, and open and enclosed spaces so that users can find a place that meets the needs of the work they are doing the people they are working with. It includes a mix of general, common study space with more specialized facilities and support such as its Digital Media Lab. Finally, the Commons has an engaged and mobile staff dedicated to providing users with services and support in innovative ways.

2 Introduction

ADDRESSING THE CHALLENGES OF THE 21ST CENTURY LIBRARY

Academic research libraries face great challenges today as they transform to support 21st century university research and education missions. Profound changes in technology, methods of scholarship and teaching, research and publication processes demand that libraries and their leadership are resilient and versatile.

In November 2006 the Association of College and Research Libraries (ACRL) convened a roundtable of experts from libraries and other related organizations to discuss these fundamental changes. ACRL summarized the group's observations and recommendations in an essay stating:

"…the years ahead constitute an age of transformation for academic and research libraries. At the outset of the twenty-first century, these institutions confront the need to reconceive and reconstruct the means by which they support faculty and students in research and education. The business of libraries can now be understood as one component of a rapidly evolving, almost wholly transformed environment in which information is proliferating at heretofore unimagined rates and in which the ability of academic libraries to deliver authenticated and reliable information is continuously challenged by new technologies."
—ACRL essay on "Changing Roles of Academic and Research Libraries", 2006

Many of these issues and trends were raised during the Hunt Library programming workshops with library staff and the building committee, and during focus groups with faculty and students. This section summarizes those challenges and trends discussed over the course of the project.

The following issues influenced the space planning recommendations for the future Hunt Library:

- Changes in scholarship, research, and publication
- Changes in how collections are used and created
- New user demands
- Changes in roles and functions of librarians
- Opportunities for new partnerships
- Sustainability goals
- The library as place

Changes in Scholarship, Research, and Publication

Technological advances have stimulated great change in how scholars conduct research - they not only use digital material but create it. In addition, research is being conducted in interdisciplinary teams, just as frequently with colleagues across the globe as with those on campus. As the rates of research discovery and generation of information accelerate, librarians are challenged to quickly organize and provide scholarly resources within and across institutions. Speed of access to new information is becoming a source of institutional advantage - not only for scientists, but for all scholars - as data and findings digitally circulate among peers prior to publication.

Changes in How Collections are Used and Created

Now that students, faculty and researchers can access library resources via online networks from anywhere at any time, material can be searched and delivered on-demand. Demand for browsing physical collections will continue to decrease as investment in electronic resources increases and browsing capabilities become more robust, and less journals are published and purchased in print form.

Users now expect to be active participants in knowledge creation as well as its use, and tools like "wikis" and open-source repositories allow multiple users to contribute to building knowledge databases. The growth of repurposing digital material to create new products and perspectives, publication on-demand, and web-enabled discourse in blogs and other evolving tools raises great challenges for libraries attemping to manage and preserve 21st century discourse and knowledge.

New User Demands

Ubiquitous access to information, once only a dream of technology pundits, is now becoming reality. Ever increasing access and technology, coupled with related cultural shifts, means that libraries have to respond to many new user demands – while continuing to fulfill many of their traditional obligations. Access is the overarching demand, with users wanting access to libraries as institutions and expecting them to be increasingly transparent in who they are and what they do. Users want speed and convenience in the delivery of library services and materials, befitting our 24/7, just-in-time, on-demand culture. Users also expect new tools to give them ever-increasing access to collections, raw data, and to each other.

With this increased access comes the prospect of increased connectivity in complementary physical and virtual environments. This means users want social spaces in order to study together or to just be in the company of others – to see and be seen. It means using new tools and settings for sharing ideas, project work, and information as part of an increasingly partici

patory culture. Libraries that provide more and better access can meet the challenges of 21st Century demands head-on.

Changes in Roles and Functions of Librarians

Librarians are being challenged to provide new kinds of services, from developing metadata systems for organizing and retrieving digital knowledge, to expanding their role in the teaching process. They are adapting to meet these service delivery demands and are leading experimentation with provision of reference services in virtual worlds. The management of institutional repositories is becoming an important role for librarians, as the rate of research productivity increases and librarians seek to define their retrospective responsibilities in a future of constantly changing and impermanent electronic resources. The pressure of constrained budgets, forcing difficult decisions and tradeoffs between print publications and digital resources, has become the norm as a context for this redefinition of roles.

"Libraries and librarians are fulcrums of academic productivity, with potential to expand both the range and depth of creative work that faculty and students undertake in any discipline. What has changed are the actions librarians perform and services they provide in carrying out these core functions. The challenge for libraries, their leadership and staff, is to recast their identities in relation to the changing modes of knowledge creation and dissemination, and in relation to the academic communities they serve."
—ACRL essay on "Changing Roles of Academic and Research Libraries", 2006

Opportunities for New Partnerships

As technological developments enable new means to visualize data and the products of research, and research endeavors involve more complex teams, libraries have the opportunity to bring researchers together on a common shared ground. The future library can continue to stimulate innovation in a variety of fields, by supporting research at NC State and forming new relationships with Centennial Campus partners. Outreach and collaboration with other libraries will be important, as will hosting groups on campus. A key opportunity for the Hunt Library could be to participate in the development of the national cyberinfrastructure to support science and engineering education at NC State.

The Library as Place

"One of the most important strategic advantages of an academic library is space. It is often observed that the library inhabits the most desirable real estate on any college or university campus. Geographically and symbolically, it occupies the center of a community established to support the advancement and perpetuation of knowledge. The positioning of the library conveys a sense of intellectual common ground, a setting in which knowledge from a range of disciplines comes together in a single place. Known as a place of gathering and collection, the library embodies core academic values reflected in the domains of knowledge that faculty and students pursue. As a physical structure and hub of interaction, it affirms the value of sustained inquiry in particular fields, at the same time it affirms the need to understand knowledge as a whole—to impart context and synthesis to knowledge produced within particular fields of study.

An increasingly important role of the library in coming years will be to provide meeting space and support to foster communities of shared interest on campus. Some of the most exciting advancements in recent years have resulted from the combining of disciplinary approaches. New kinds of partnerships among scholars and their disciplines make it possible to ask questions and explore existing knowledge in different ways. Yet the growing interest in interdisciplinary pursuit has not tended to yield new allotments of space on university and college campuses. The library has the unique potential to provide common space to strengthen academic community and foster new developments in teaching and research within the institution. Beyond the provision of meeting space, the library's continuing appeal must derive from the new kinds of academic service functions it provides in support of teaching and learning as well as academic centers and research enterprises."
—ACRL essay on "Changing Roles of Academic and Research Libraries", 2006

Lake Raleigh

3 Vision of the James B. Hunt Jr. Library

a. Iconic, signature building
b. Promote interaction/collaboration

3 Vision

Iconic, Signature Building

In a time when the notion of a Signature Building has become common expectation it is important to understand the essence of what this means in the context of this specific project and to carry it beyond the merely visually different.

The James B. Hunt Jr. Library will serve not only as a signature building for the new Centennial Campus, but also as an icon for the growth, ambition, and innovation at NCSU and the surrounding community. It will merge with the new masterplan to create a unique environment for learning, research, and collaboration within academia and professional business. The icon will not only be the building itself, but also the interactions, knowledge, and increased standards it promotes.

Promoting Interaction/Collaboration

The design of this building, the nature of the spaces it contains will be key to creating a successful collaborative atmosphere. Space can indeed promote or prohibit interaction between people depending upon its design. Creating a strong presence for the Library, IEI, and Chancellor's Spaces can potentially arouse curiosity in the visitor of one institution to find out about another. The collaborative learning environments, as well as informal seating areas, lobbies, cafe and circulation zones should allow for the chance encounter or impromtu meeting. Adequate and exemplary design and utilization of space will promote healthy working relationships among students, staff and all visitors. The design of the building should promote a sense of welcoming prorousity, ownership and pride in all its users.

"It should be a symbol for NC State and North Carolina."

"(There is) no art, beauty, or expression on campus, it's completely utilitarian."

"The building would be a success if it becomes a stop on the campus tour."

"There are two important things to Larry Nielsen: Sustainability…and (balancing) having iconic architecture and having something that completely blends in."

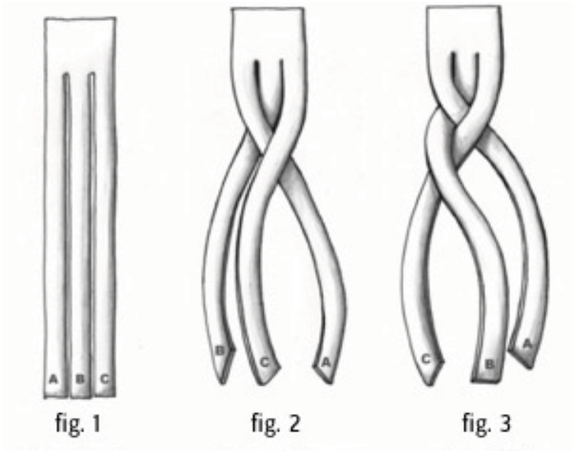


fig. 1 fig. 2 fig. 3

4 Institution Descriptions

a. Library
b. Institute for Emerging Issues (IEI)
c. Chancellor's Space

"It's a social monument that exudes its functionality."

"The library should extend that image (of Centennial Campus)…as a model for a future community"

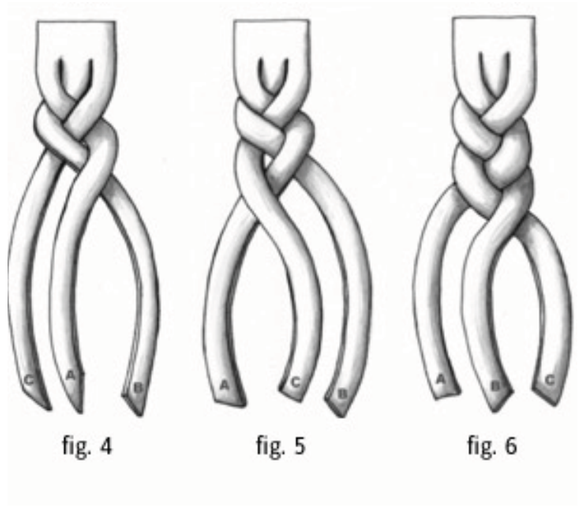


fig. 4 fig. 5 fig. 6

4 Institution Descriptions

Library, Furthering its Mission

The establishment of the James B. Hunt Jr. Library is a key effort in furthering the Library's mission to support the academic goals of the University. The Hunt Library is to become a nexus of activity for Centennial Campus and the entire NC State community, and will do so by addressing several important roles played by the 21st Century academic library.

First, the Hunt Library will provide a wide range of individual and group study settings that support quiet, contemplative study and promote interaction and collaboration for a wide variety of users- from students and faculty of all disciplines to campus affiliates and residents. Second, advanced and cutting-edge digital technologies will connect library visitors with resources both within and outside the Hunt Library. And third, the Hunt Library will incorporate sophisticated collections management systems in order to provide efficient and total access to the library's growing physical collections.

IEI

The Institute for Emerging Issues, (IEI) is a public policy, think-and-do tank that convenes leaders from business, non profit organizations, government and higher education to tackle some of the biggest issues facing North Carolina's future growth and prosperity.

Through research, ideas, debate and action, IEI prepares leaders to address North Carolina's future challenges and opportunities. North Carolina has long been a model state in the Southeast, with a legacy of forward-thinking leadership and effective collaboration. IEI seeks to mirror and encourage these values, serving as the premiere, university-based public policy organization.

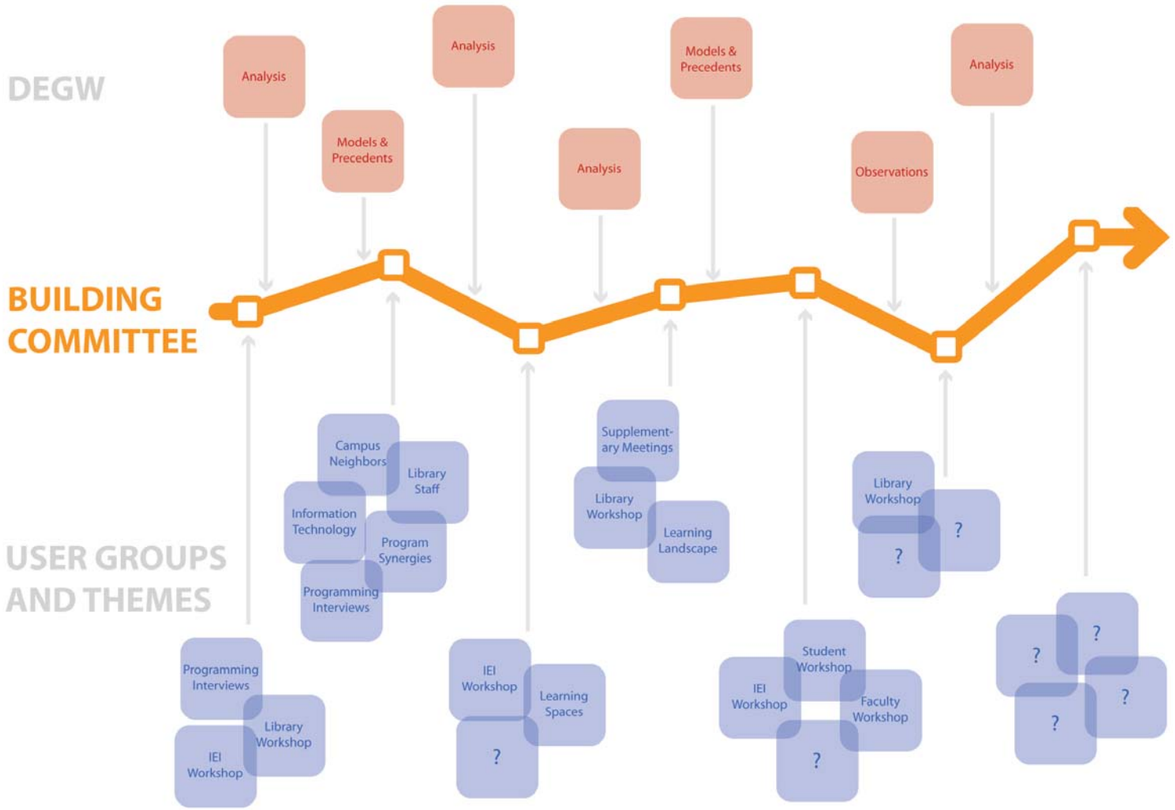
Chancellor's Spaces, Establishing a Humanities Presence

Although the Hunt Library will be home to the engineering collections, the building will be a common meeting ground for the University community. Accordingly, a group of office suites, the Chancellor's Spaces, will call the Hunt Library home, creating a presence for the Humanities and Social Sciences on Centennial Campus. The Chancellor's Spaces will house several different institutes and Centers, serving to incubate small organizations and providing access to shared resources and fostering collaboration within and across the groups.

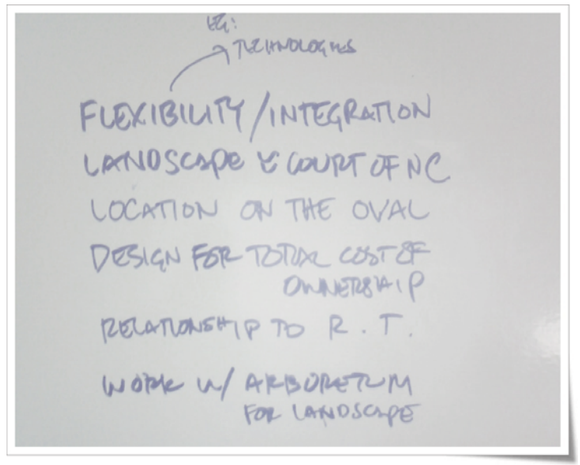
Ideas Store

5 Programming

a. Process
b. Key Findings by User Groups
   i. Building Committe
   ii. Library
   iii. IEI
   iv. Chancellor's Spaces
c. Program Summary
d. Program Areas
   i. Common Space
   ii. Library
   iii. IEI
   iv. Library
e. Shared Meeting Space Demand Forecasts
f. Space and Program Strategies
   i. User Space Concepts
   ii. Exemplary Learning Space
   iii. Collections
   iv. Connective Building Lobby
   v. Layers of Access
   vi. Space Sharing Strategies
   vii. Flexibility/Versatility
   viii. Library Service
   ix. Adjacencies
g. "A Day in the Life"



DEGW Approach



Programming Process

The Programming process for the Hunt Library brought together building occupant groups, library users, and advisory stakeholders in an inclusive, engaging process. The goal of this process was to understand the needs and aspirations for the building and then translate those into a space program that represents them in terms of quantities, qualities, and relationships. Along the way, key underlying program concepts were developed to inform the design and apply the program. This process was interactive, engaging stakeholders in interviews, discussions, and workshop exercises, but it was also iterative in order to provide many opportunities for input and refinement over time.

The program was developed beginning with interviews, briefings, and visioning sessions and then developed through workshops over six rounds of meetings, led jointly by DEGW and Snøhetta. To understand their needs and aspirations, the design team met regularly with the IEI leadership and staff, and to understand those of the Chancellor's Spaces occupants, we met with an ad hoc committee representing CHASS, Graduate Students, and potential Non-profits. Our work with the Library included meetings and workshops with the library leadership team as well as with staff groups focused on themes - collections, technical services, staff space, digital library, user space. We also engaged user and stakeholder groups including IEI visitors and external stakeholders, the University Libraries Committee, undergraduate and graduate students from a variety of disciplines, faculty, library and campus IT professionals, an ad hoc advisory group on innovative learning spaces, and the University Architects Office. Last, the project steering committee (Building Committee), provided the input, continuity and decision-making throughout the process.

The programming workshops focused on open-ended, creative thinking in the beginning of the process and then gradually moved toward specific reviews of emerging program assumptions, needs, and concepts – from strategy to tactics. These workshops included discussions about key issues such as access, services, image and identity, growth, technological-change, circulation and wayfinding, culture, and design. To address these an other topics, workshop participants engaged in exercises and activities to articulate their vision for the building, imagine the key spaces and features of the building, map the elements and organization of their workplace, create the future staffing organization, and develop the key adjacencies.

The findings by user group are described later in this report on pages 16-21. However, despite the variety of participants in the process, there emerged six key themes for the Hunt Library:

1. To create signature, iconic building for Centennial Campus and NC State whose presence is commensurate with the importance of the Library

2. The building must house three different 3 occupant groups – the library, IEI, and Chancellor's spaces – in a seamless way while also maintaining their individual identity and access

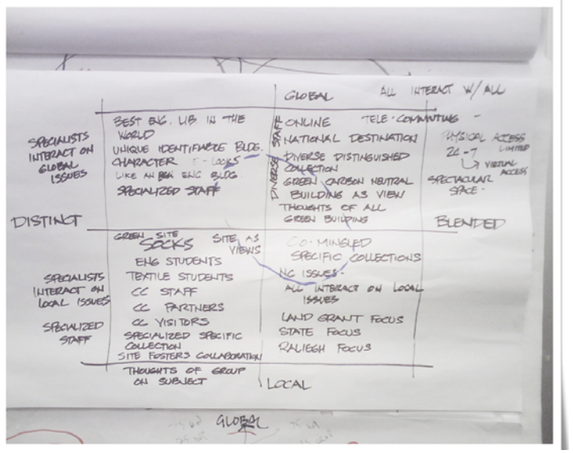
3. The Library will have a diverse user base consisting of undergraduate and graduate students in engineering and other disciplines, faculty, Centennial Campus corporate affiliates, students living nearby, unaffiliated residents of Centennial Campus housing, the local community, and tourists/visitors

4. The library must provide a spectrum of users space that blends more common with specialized functions and offers users choices as to where and how they work

5. Versatility is a key aspect for the building so that it can accommodate different uses, enable more effective space usage by sharing it across groups, and enable the library to respond to changes with agility

6. To promote interaction and collaboration among students, faculty, staff, and affiliates while balancing the need for global connectivity with local focus

In addressing these six themes and those articulated in further detail in subsequent pages, the Hunt Library will meet the challenges of the 21st Century library. As a signature facility that brings people together and supports them well now and in the future, it can deliver on the promise that its site and program represent.



Scenario Planning Exercise

Scenario Planning was an exercise in which the Building Committee envisioned a series of possible directions for the project at hand. Four quadrants were defined by a pair of axes. The axes, placed perpendicular to one another, represented a continuum along two separate concepts, one being Local vs. Global, and the other being Distinct vs. Blended. The two axes, then, defined four quadrants, each of which represents a key driver for the library.

For each of the four quadrants, the Building Committee defined the Hunt Building in terms of how it embodied that quadrant's distinct combination of the two concepts. Subsequently, after a discussion on the relative advantages and disadvantages of each scenario, the committee came to a consensus on which particular characteristics the future Hunt Building should embody.

GLOBAL

DISTINCT

BLENDED

LOCAL

BUILDING ASPIRATION

The Global Engineering Hub

· Populated by a specialist staff in the engineering and related fields

· Integrated within a global network of specialists to provide world-class expertise

· Hunt Building stands out as an internationally-recognized symbol of excellence in engineering education

· Specialized spaces promote face-to-face and virtual collaboration among the local and global engineering community, as well as serving the distinct needs of the Centennial Campus students

The Global Community Hearth

· A bridge between the diverse populations found at NC State and connects them with other academic communities around North Carolina, the United States, and the world

· Staff with diverse interests and specializations bring users and visitors in contact with collections and with each other

· Settings for learning and community events for the campus, as well as virtual networks for reaching out, alongside individual and group learning spaces

· Distinct, diverse collection attracts visitors from across the University and is leveraged to establish NC State as a global leader in knowledge and education

The Local Engineering Hub

· Staffed by experts to serve the NC State engineering disciplines and related fields

· Visitors and users consist primarily of the graduate and upper-division undergraduate students who call Centennial Campus home

· Building acts as the center of academic life on Centennial Campus, with collections and space focused on the needs of the engineering disciplines

· Collections may also be of interest to the Centennial Campus Partners.

The Local Community Hearth

· Users from around the NC State community use the Hunt Building as an invaluable learning resource

· Diverse range of staff serves the needs of a broad cross-section of educational needs, albeit focused on the graduate and upper-division undergraduate level students that are predominant on Centennial Campus.

· Many shared spaces with diverse functions, both in the interior and exterior of the building for NC State students to study and socialize

5 Programming

Key Findings by User Groups

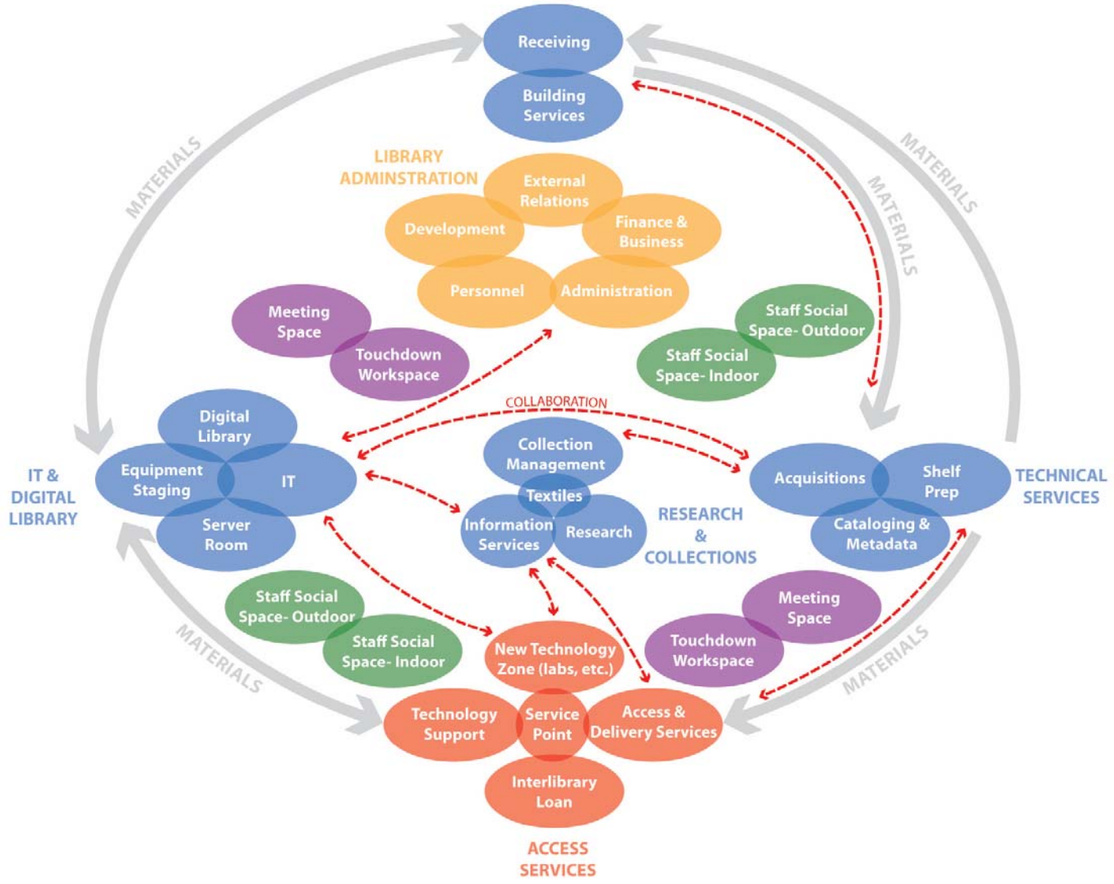
BUILDING COMMITTEE

The Hunt Library building committee articulated a clear vision for the Library that was drawn from a variety of perspectives but puts the project into clear focus. The Library must be a signature, iconic structure that demonstrates its importance to the campus and the University. It must also work with the campus context by relating to and furthering the campus Master plan. The building should draw inspiration not only from the site but also from other innovative facilities in order to create something that is unique, different, and challenging, but also remain timeless.

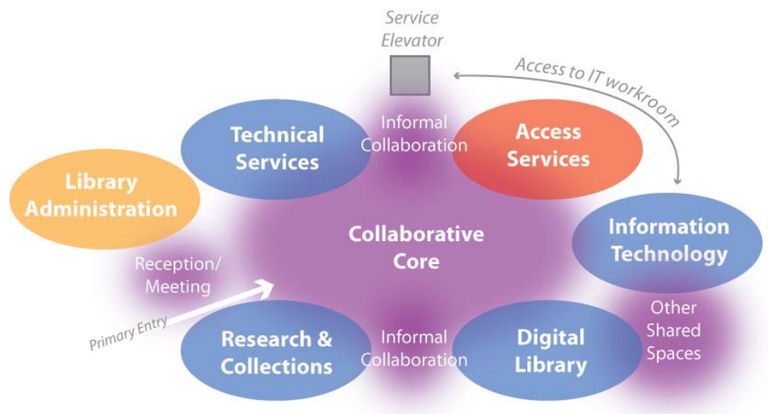
The committee also saw that while the library must focus on engineering as its key user group and collection, it should have the spirit of a "University library" for use by all. As part of that spirit, the building will also house different occupant groups, allowing them to share resources and increase traffic to and from the facility. These include NCSU Libraries, the Institute for Emerging Issues, and a cluster of Humanities-related groups named the "Chancellor's Spaces," placed to create a presence on Centennial Campus. Further, the building has a collaborative mandate in that the at the library plays role in establishing community and fostering communication, since as Governor Hunt stated, "Knowledge transfer is a contact sport."

The building's organization plays a crucial role in achieving a timeless, iconic design and bringing different groups together. Key to this organization are considering "layers of access" for different user groups, acknowledging that the public versus service/spaces must be clearly delineated as with spaces occupied and managed by specific occupant groups versus those that are common and shared by all. This "zoning" of the building must not only address the "ownership" of different spaces, but also that much of the building will operate 24x7 while others will be more focused on 9 to 5 usage. As part of a scenario planning exercise, the committee also envisioned an organization for the building that was more about blending different groups and functions together (rather than keeping them distinct) and articulated a global focus for the facility in that it would reach out and draw in. The need for access control will thus have to be tempered by the vision of the building as a mixing grounds.

Within this organization, interfacing with, and indeed incorporating, the exterior and the surrounding landscape were also key design aspirations, as was constructing and operating sustainably, with LEED Silver as the stated minimum for the facility. By bringing together different groups in a signature, iconic facility that is organized to blend spaces and activities, the Hunt Library can deliver on the ambitious charge the Building Committee articulated.



Library Staff Organization



Library Staff Vision for Organization of the Library Staff Workplace

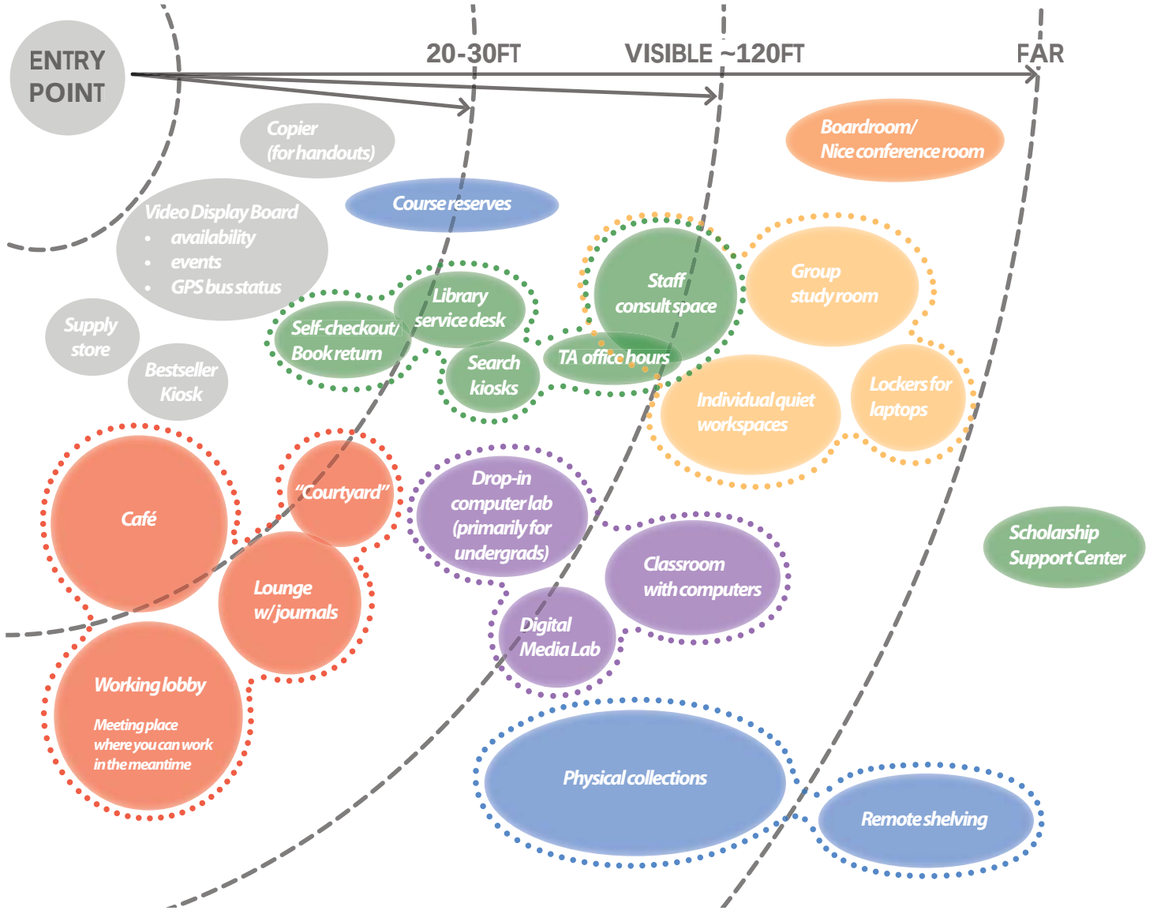
5 Programming

LIBRARY

The library vision for the Hunt Library is a place that functions as a nexus of activity, an irresistible magnet that offers not only information, but inspiration. It must function as a campus centerpiece that draws people together and helps promote interaction and collaboration while supporting users today and as their needs change tomorrow. It must also acknowledge that there will be a wide variety of users – from students and faculty of all disciplines to campus affiliates and residents – without losing sight of the engineering community as the core user group.

To meet these needs, the library will need to mix specialized space and services and more common, versatile ones. This means offering a full-spectrum of user spaces in terms of size, atmosphere, enclosure, support, and technology - granting users not only choice in where and how they work, but also some control of the environments themselves and how they interact with Library staff physically and virtually. The library must also be easy to navigate so that users can find the information they seek and also their place, technology, and collaborators. The collections within the library are a critical part of the user experience, and these must combine easy access to high-use physical and electronic materials with providing shelving capacity so that the Library can function as a repository of physical collections – now and in the future.

The Library is increasingly a place not only to retrieve information but also to create it – a place to work on projects both alone and together, to tinker with ideas and information, and experiment with new ways of doing things. The success of the Library will be dependent on nimble staff that can work in a more mobile way and can adapt to new roles and functions and offer expertise at supporting users' navigation of an increasing complex world of information. To deliver these services, librarians will need open and collaborative work environments that are driven not by hierarchy but rather by evolving functional groupings and their entrepreneurial culture.



Graduate Student Vision for Organization of the Library

5 Programming

Summary of Findings from Library Users

In developing the vision and program for the Hunt Library, the design team met with a variety of library users to understand their needs and aspirations. While rich and diverse input was offered (as noted individually below) there were also a number of common themes expressed. These key themes include:

• Providing choices by offering a variety of settings in which to work

• Balancing between a library that functions as a lively hub of activity that draws people together with the need for a retreat or sanctuary that inspires

• Offering shared resources that can be used by a variety of users

• Supporting teaching by providing innovative spaces, technology, and support

• Supporting research with expertise and excellent physical and electronic collections

• Creating ways for users to leave their "footprints" in the library so that users can see what others are doing, build upon them, and be inspired

• Achieving sustainability in the Library's construction and operations

Summary of Findings by User Group

• NCSU Faculty

The NCSU Faculty Vision for the Hunt Library is shaped by two important but somewhat conflicting priorities as to their needs; they see the library as a sanctuary and retreat from the distracting and less inspirational places elsewhere on campus while at the same time they recognize the need for the library to be a place of connection, one that can draw people together to collaborate, attend events, and cross paths. In terms of their own needs, faculty see great value in positioning the library as a place for them to be productive when they have downtime or are moving between campuses, thus requiring access to technology, library expertise and a variety of work settings – individual and shared, open and enclosed. They also place a high value on featuring, indeed celebrating, the library's collections, and they therefore want them to be accessible and arranged to promote discovery- digitally and physically.

Faculty also saw the library as playing a pivotal role in supporting research and teaching at NC State in many distinct but complementary ways. They see the library as a place that can enable and inspire discovery and provide access to librarians that can help students with knowledge navigation and source validation – a major challenge in the digital age. Access to technology for collaboration and instruction is also a key element, providing access to global resources and people. Needless to say, providing great settings for their students to work in, both individually and collaboratively, is also a priority. Incorporating new and innovative learning spaces was also crucial for them, though with the caveat that a showroom-type atmosphere for these spaces needed to be avoided so they are actually used rather than just observed. Finally, faculty see the building itself as a pedagogy in that it can teach students about how engineering, construction, sustainability, and collaboration.

• Graduate and Undergraduate Students

As part of the programming for the Hunt Library, the design team met with several groups of students to hear their aspirations for the building as well as their needs to support their study and research. They see the library as a center of activity on campus and come to libraries to spread out, work together, be inspired, use technology, access collections and get assistance from library staff. Of those undergraduate and graduate students that attended the three workshops (which represents an impassioned, engaged group of students rather than a truly representative sampling), 2/3 of attendees physically browsed collections, 1/3 visit a library daily, and all visit at least weekly. In terms of the mission of the Hunt Library, the student perspective articulated three key drivers; first, the library should be a place to bring different disciplines together – it should promote interaction so that users can see what others are doing and leave traces of their own (this sentiment was notably echoed among the library staff in separate sessions) and galleries and exhibitions of student work are crucial components of this. Second, the library must be a place on Centennial Campus, functioning as a destination and incorporating food. Third, it also needs to be sustainable, not only in its design but also in its operations, through recycling, energy use, and connection to transit – to name but a few aspects.

Students articulated many attributes for the building as well, noting that it needs to accommodate a range of occupancy from just passing through for a few minutes to all day or all night usage. They see a real need for a mix of different spaces – as one student remarked: "we all work in different ways… some people need quiet other people needs things going on around them." Further, group study was noted as a priority as were meeting the specific needs of graduate students (who feel a bit overrun on campus currently) with dedicated spaces. Outdoor study spaces were also a priority, with porches, terraces, and courtyards noted as desirable along with access to power and data within these spaces. In terms of the collection, there was stress that accessing collections, both physically and digitally will be important (though students needed prompting on the subject) but that the library needed to "come up with a better way of displaying books" - meaning that conventional stacks

were unappealing. Lastly, students also provided input on the library's organization. One vision for this was discipline-specific areas with specialized services nearby. Many also noted the need for clear wayfinding within the building to make it easier - through physical design and technology - to see what is where, where people are, what rooms are available, and to stack like functions from floor to floor.

• University Library Committee

The University Library Committee's vision for the Hunt Library is that of a Library that serves the needs of the entire university and a wide variety of users, while targeting those of the engineering community. The library is also seen as fulfilling an important social function as well – a "face-time place." The integration with the surrounding context and landscape is also essential, as is the incorporation exterior spaces (such as courtyards, terraces, and porches) within the building design. In relating to the context, the committee sees a crucial need to challenge the uniformity and rectilinearity of Centennial Campus while still fitting into it.

The committee also saw supporting teaching and research as key missions for the library. They see research being supported by access to world-class collection, unique, shared resources (e.g.: visualization studios) that are not available elsewhere on campus and departments cannot provide on the own, expert staff (who require "top-notch" workspace), and gathering spaces for events, conferences, and lectures. Likewise, support for teaching depends on providing innovative settings for faculty to teach in on a trial basis, hands-on support, appropriate technologies for visualization, collaboration, distance learning, and providing a range of settings that support learning and study outside of the classroom.

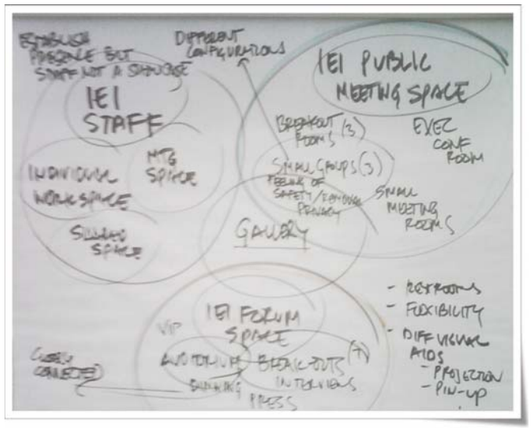
• Campus Partners

Centennial Campus is place where academia and industry come together, for their mutual benefit. Accordingly, as part of the programming of the Hunt Library, campus affiliates and their NC State contacts provided input on the goals for the building and their needs in terms of space, technology, and support. Most importantly, they saw the library as furthering the university campus feel that attracted them in the first place, by creating common gathering space. They also noted that campus affiliates will come to the library not only for its qualities as a unique, inspiring place, but also for access to the physical and electronic collections as well as the expertise of the library staff. This will be especially true among smaller companies, with fewer resources of their own. They also noted that the library may become a popular place for informal meetings as well as more formal gatherings and events. While this will help the library fulfill its mission as a mixing grounds, care will be needed to strike the right balance between serving the needs of the students and faculty with those of affiliates.

Several specific comments as to the planning of the library were also noted. First, the affiliates felt that that the Hunt Library will end up as the de facto "Visitors' Center" for the campus and so should accept this as a reality for the immediate future. Second, they stressed that it needs to be near or connected to transportation (e.g.: shuttles) and parking. Third, they reinforced the need for a signature facility with a design commensurate with the building's importance. One workshop participate compellingly captured this, stating "The library can be considered successful if it can be considered home turf by the different groups on Centennial Campus, is a destination for those from other parts of the university, and is seen as the front door for Centennial Campus"

• Engineering Community

As the primary users of the Hunt Library, the engineering community's needs must be met. Indeed, the library is a key factor in NC State's strategy for growing its engineering programs and proceeding along the path to national and international prominence. Discussions with leadership and representatives of the engineering community stressed several key attributes for the Hunt Library. First, they noted that "engineers are natural collaborators" and this is an increasingly important part of engineering curricula such that space, technology, and support for collaborative work must be high priorities. Secondly, they see the library as a place to offer shared facilities, such as visualization facilities, that can be used by multiple departments – promoting more effective use and further encouraging interaction and collaboration. The library is also seen as the best place to showcase technology and leverage its impact on learning and research. Last, they see the library as playing a pivotal role in bringing the school and industry together on campus and therefore making good on the promise and central tenet of Centennial Campus.



INSTITUTE FOR EMERGING ISSUES

The Institute for Emerging Issues (IEI) is a public policy, think-and-do tank that convenes leaders from business, non profit organizations, government and higher education to tackle some of the biggest issues facing North Carolina's future growth and prosperity.

Through research, ideas, debate and action, IEI prepares leaders to address North Carolina's future challenges and opportunities. North Carolina has long been a model state in the Southeast, with a legacy of forward-thinking leadership and effective collaboration. IEI seeks to mirror and encourage these values, serving as the premiere, university based public policy organization.

IEI's new offices within the Hunt Library must support its work with public-facing spaces for meetings and events, collaborative space for IEI staff, and a gallery which highlights Govenor Hunt's visin and leadership and IEI's programs of work.

Public-facing Spaces

The IEI's public-facing spaces must accommodate a variety of meeting types and sizes, often occurring simultaneously and for long durations. In addition to the annual IEI forum of more than 1,000 people (see below), these meetings range from small groups of six to eight people to 100 participants. Beyond achieving easy access and high-quality design in terms of furniture, finishes, and technology, another key mandate for these spaces is that that they encourage dialog though their atmosphere, configurations, and relationships. They must also enable outreach through technology as the IEI will not only record and distribute proceedings, but also bring in remote presenters and audiences. These meeting spaces will also be complemented by and organized around the Hunt Gallery, so that the building can be a hub of physical and intellectual activity. Last, the building must easily accommodate visitors to the IEI by providing clear wayfinding, a lively, welcoming atmosphere, and the kinds of space and technology that allow visitors to be productive during, before, and after meetings.

Staff Spaces

The IEI staff envisioned settings in which to work that will include open, collaborative work space as well as enclosed space for concentrative work. These spaces, which should be slightly removed from the public spaces but still close to them, should reflect the IEI's culture of participative and collaborative leadership. The spaces must enable open communication while allowing for individuals as well as project teams to separate as needed for individual work. Further, the IEI also relies on faculty fellows and interns, so space must also accommodate their needs and make them feel connected to the IEI staff and process. Throughout, the sharing of collaborative spaces as well as nature, natural light, and view will play key roles.

IEI Forum

The IEI is engaged in ongoing activities to build consensus on key policy positions and these activities are coordinated with the state legislative calendar. The most prominent activity or event is the annual IEI Forum, currently in its 24th year. The Forum is a high-profile opportunity to engage leaders in business, government, higher education and the non-profit community to establish a consensus agenda and facilitate public policy. The two-day event consists of both plenary as well as breakout sessions and formal meals for all attendees. As of 2008, the Forum's draw has exceeded the capacity of its recent home, McKimmon Hall, and so the 2009 forum will be held at the Raleigh Convention Center. Hosting the forum within the Hunt Library was investigated as part of the programming process, but ultimately, a space of sufficient capacity was not possible within the project budget. However, the library will contain numerous meeting and event spaces as well as the Hunt Gallery.

Media Capabilities

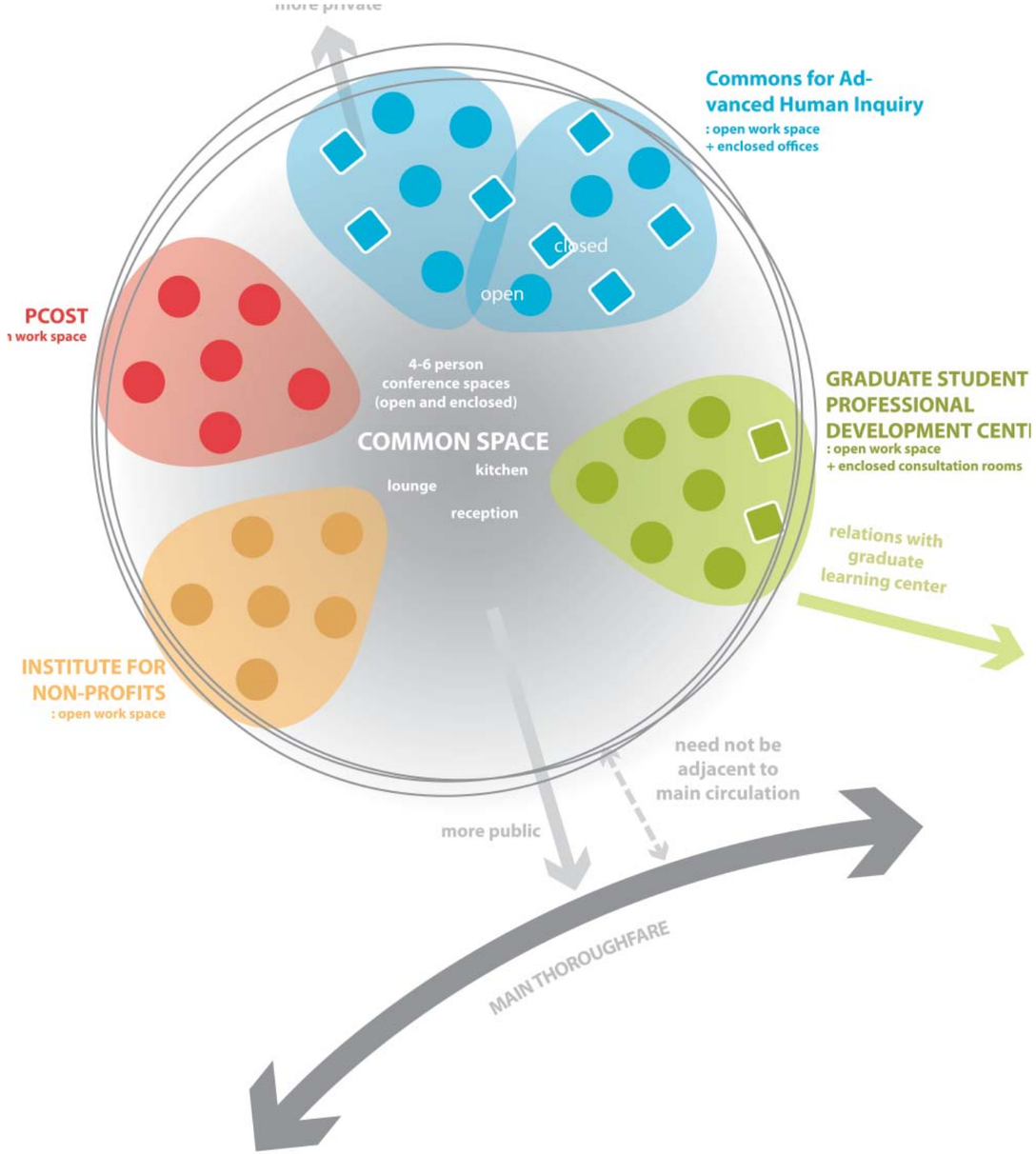
Looking forward, the IEI also identified several other priorities in addition to the Forum, each with unique space requirements. The IEI wants to develop its media capabilities to allow greater control in the presentation of its public image. These aspirations include some capabilities for in-house media production, the ability to broadcast Forum events to sites around the state, and drop-in events like press conferences. These aspirations create requirements for large spaces to act as press conference rooms as well as more back-of-house areas to house the technology for editing and producing.

Gallery

The Hunt Gallery space will explain IEI's work by presenting a compelling picture of North Carolina's legacy of policy leadership and offering stimulating observations of the state's future. The gallery will allow new generations of leaders to explore their own options for engaging in complex and serious issues facing our state.

Conclusions

The IEI's space requirements are diverse, however there are common themes that will be crucial to achieving the vision in the Hunt Library. These include: an inviting atmosphere which is visibly sustainable, a progressive atmosphere that remains tied to history, and a series of spaces that work together to enable their-consensus based policy process. As with other groups in the library, the IEI must balance the interests of maintaining its own identity while connecting with the larger identity of the Hunt Library. Through a careful focus on both coordination and characterization, the IEI space can achieve this goal.



Organization of Chancellor's Spaces

CHANCELLOR'S SPACES

As Centennial Campus is predominantly engineering-focused, it is crucial to create a presence for Humanities and the Social Sciences within the Hunt Library. Accordingly, a group of office spaces have been designated as five flexible "modules" within the building along with shared reception, meeting, and project spaces as part of an overall suite. These "Chancellor's Spaces" will house several Institutes and Centers with different character – some outward facing, others more introspective and retreat-like. By bringing these together, the University can incubate and house initiatives in relatively generic office space such that other groups can use these spaces when groups outgrow their space or as the University's long-term priorities evolve.

This cluster of different groups will have a common identity and shared resources, enabling them to use space efficiently and foster collaboration within and across groups. In addition to providing project rooms and spaces for smaller, more spontaneous meetings within the suite, Chancellor's Space occupants will also have access to common spaces within the building for meetings, food service, lecture, and events. Last, the organization of the spaces within the overall suite should account for the anticipated visitorship and desired character of each module such that the more private groups are the furthest from the entry. The groups within the Chancellor's, in order from outward- to inward-facing, will include:

- The Institute for Non-Profits
- The Graduate Student Professional Development Center
- The Center for Public Communication on Science and Technology (PCOST), and
- The Commons for Advanced Human Inquiry (occupying 2 modules)

The Institute for Non-Profits

The Institute for Non-Profits is primarily an outward-facing organization, hosting a high volume of visitors daily as well as conducting programming within some of the larger shared meeting spaces, especially the multi-purpose space and shared work rooms. The Institute should be toward the front of the Chancellor's Spaces off the main lobby of the library. Although collaborative work-sessions and meetings are a big part of the Institute's work-style, it is predominantly stationary with requirements for a more traditional office environment in terms of their own space.

The Graduate Student Professional Development Center

The Graduate Student Professional Development Center is relatively balanced in terms of its inward and outward focus. It is charged with developing programming for Graduate students at NCSU. From its office spaces, it will plan and coordinate this programming as well as host an estimated ten students per day for meetings and consultation. The work-style of the Center is best served by a more open office environment with shared spaces for private consultation. The Graduate Student Professional Development Center will also need easy access to the Graduate Commons in the library, informing a larger adjacency between the Chancellor's Spaces and the Library, although the overriding adjacency priority is for proximity between the Chancellor's Spaces and the public meeting spaces. The Graduate Center will also conduct a variety of public events and programs within the library, though the exact nature and scope of this programming will need to be determined as well as coordinated with similar need of other groups within the building.

The Center for Public Communication on Science and Technology (PCOST)

The Center for Public Communication on Science and Technology (PCOST) is primarily an inward-facing research group who will only receive visitors on occasion. Beyond their individual work settings, their most important space requirement is for multi-purpose space which would be provided by work rooms shared with the other Chancellor's Space occupants. The work-style of the PCOST is predominantly stationary, requiring traditional office environments with some space sharing. The space would need to be tailored to accommodate occasional guided tours through a location accessed from the main lobby. PCOST would be able to use its adjacency to the IEI to coordinate on public engagements.

The Center for Advanced Human Inquiry

The Center for Advanced Human Inquiry will function as a faculty scholarship center enabling concentrative work of faculty on sabbatical and those working on select research projects. This is seen as a prestigious appointment, and so faculty will be selected through a competitive process and these spaces will amount to a double "module" within the Chancellor's spaces. The space will therefore require a more traditional office environment, including = enclosed offices for each faculty member as well as shared spaces for collaboration. The use of these spaces is foreseen as mainly for faculty working individually but engaging with others and venturing out to other parts of the building on occasion so that occupants can take advantage not only of the overall setting, but of the library space, staff, and resources.

5 Programming

Program Summary

The culmination of the visioning and programming phase of the Hunt Building design process is the space program of proposed facilities. Throughout the visioning and programming workshops, DEGW outlined the key activities of the Library, Institute for Emerging Issues, and the Chancellor's Spaces, as well as the spaces needed to support such activities. The detailed proposed program, which can be found in this report's appendix, is summarized to the left. The program defines the specific spaces that will make up the Hunt Building and specifies the required floor area by each program element along with any key features or relationships to other spaces.

Summary Space Program of Proposed Facilities

	AREA	% NSF	NOTES AND ASSUMPTIONS
1 PUBLIC/COMMUNITY SPACES	**12,805**	**9.2%**	Common spaces for building as a whole, including entry/lobby
2 HUNT COMMONS & USER SPACES	**47,450**	**34.0%**	Library user space for individual and group work, along with related service/support
3 LEARNING/COLLABORATION SPACES	**5,450**	**3.9%**	Specialized and more formal learning spaces (a subset of user spaces)
4 LIBRARY STAFF SPACE	**21,439**	**15.0%**	Workplace of Hunt Library staff & administration
5 COLLECTIONS	**13,606**	**10.4%**	Library collections (ARS unit is not counted in net-to-gross calculation)
6 INSTITUTE FOR EMERGING ISSUES	**23,744**	**17.0%**	
IEI Staff Workspace	6,494	4.6%	IEI workplace
IEI Meeting and Event Space	17,250	12.3%	Public and meeting spaces
7 CHANCELLOR'S SPACES	**6,769**	**4.8%**	Flexible incubator-type space for programs affiliated with CHASS
8 BUILDING SUPPORT	**7,962**	**5.7%**	
General Building Support Spaces	1,072	0.8%	General building support
Library Operations and Building Support	6,890	4.9%	Library-specific building support
TOTALS			
Total Building Net Assignable Area (NASF)	136,118		Net Assignable Area
Total Building Net Usable Area (NSF)	139,710	100%	Includes circulation factors
Total Building Gross Area assuming N:G at 65%	**207,353**		Gross Square Feet

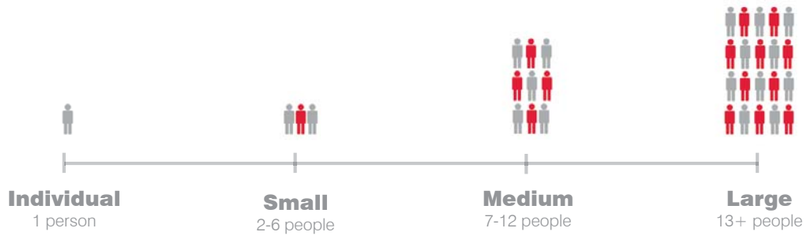
5 Programming

Space Attributes Index

The Space Attributes Index is way to describe the important features for key spaces within the Hunt Library. These qualitative descriptions, coupled with an understanding of the kinds of activities envisioned for these spaces, determine the appropriate location, technology, furnishings and services for each space.

Each of the key spaces in the Hunt Building are described in the following pages with a summary paragraph, representative photographs, and a 'taxonomy' of space attributes according to the following criteria: Group Size, Boundary, Flexibility, Ownership, Technology, Collections, Consultations, Atmosphere, Teaching, and Interaction. Where appropriate, arrows indicate dynamics in these criteria, reflecting assumptions that certain characteristics will change over time.

Group Size:



Individual
1 person

Small
2-6 people

Medium
7-12 people

Large
13+ people

Boundary:

None
Provides open area with no visible separation from adjacent settings

Minor
Accommodates for furniture groupings, low screens, plants as dividers

Major
Use of partitions and screens to divide space

Total
Provides for an enclosed room

Flexibility:

Fixed
Fixed furniture or technology limits possibilities for other uses

Moderate
Furniture/technology can be reconfigured by staff for alternate uses

Configurable
Configuration allows for alternate uses, time shared by different groups

Flexible
Users can reconfigure space and technology at will for other activities

Ownership:

Dedicated
Provides for enclosed offices

On Demand
Accommodate for reservable group rooms

Shared
Accommodate for multiple occupants, suites

Public
Accommodate for shared space/common

Technology:

Basic
Ubiquitous access to wireless and power

Enhanced
Accommodate for data projector, smart board, large display device

Advanced
Accommodate for multi-screen displays, Access Grid, node, etc.

Experimental
Accommodate for immersive or simulation environment

Collections:

Browsable
Print volumes stored on regular stacks on grounds

Closed
Virtual browsing only, with print volumes retrieved upon request

Print on Demand
Virtual browsing with physical volumes available for printing on a limited basis

Virtual
Collection accessible via net-works or on-site with licensing limitations

Consultation:

Limited
Limited or no expertise

Broad
Broad, generalized knowledge available for user reference

Subject-Oriented
Expertise available for subject-oriented studies

Focused
Specialized knowledge available for more focused inquiries

Atmosphere:

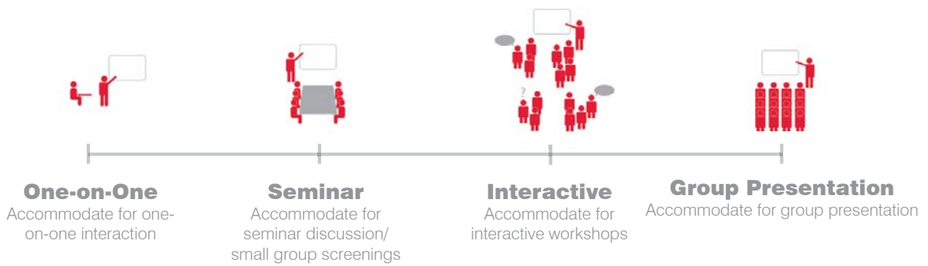
Formal
Conventional setting configured for research or work

Versatile
Setting can be used for both formal and informal activities depending on configuration and user requirements

Cyclical
Ambiance can change with time of day, activity protocols, lighting, etc.

Informal
Accommodate for casual settings for research, work, and social activities

Teaching:



One-on-One
Accommodate for one-on-one interaction

Seminar
Accommodate for seminar discussion/ small group screenings

Interactive
Accommodate for interactive workshops

Group Presentation
Accommodate for group presentation

Interaction:

None
Accommodate for individual work, quiet study

Collaborative
Accommodate for work with others in small groups, consultation

Interactive
Accommodate for group meetings, seminars, presentations

Social
Accommodate for active informal social space

Programmatic Space Types

The strength of the vision for the Hunt Building rests on its ability to serve multiple roles for its diverse user groups. As a nexus, the library will act as a magnet for students, faculty, staff, and visitors. These groups have a wide range of needs and the building will have a correspondingly varied set of environments to accommodate work, study, meeting, collaboration, socializing, and many other activities.

The following section outlines a series of environments that are customized to suit the variety of activities that will take place in the future Hunt Building. Each page describes a particular design strategy for a number of different spaces within the library. Along with descriptive text and imagery from similar environments found in other educational institutions, the space's physical and programmatic attributes are defined within the parameters of the taxonomy of space type characteristics. These programmatic space type sheets thereby give a snapshot of how each unique environment is configured to foster a range of activities and complement one another to provide a comprehensive center for learning for NC State.

COMMON SPACES

The public face of the Hunt Building and Library is its common spaces. The common spaces are the places where both the University and the greater community come together for meeting, learning, socializing, and other activities. The diversity of activities and settings within the common spaces bring a "buzz" and vitality to the building, attracting visitors and users throughout the day and night. The spaces include:

- Building Lobby
- Auditorium
- Lecture/Event Space
- SkyLounge
- Exterior Spaces

These spaces are found near the primary entrance to the Library and outside of the Library's security perimeter in order to ensure that access and wayfinding are straightforward and easy to navigate, especially for those visitors that are not familiar with the building.

LIBRARY

The Hunt Library serves as a primary anchor for academic life within the building, Centennial Campus, and NC State. A magnet for students from across the University, the Hunt Library is not only home for a large portion of the University's collections, but is also an active and lively center for learning. The Library houses a vast range of specialized and multi-purpose settings for learning and collaboration, suited for the distinct needs of the University community. The diversity of settings helps make the Library into a "hearth" of academic life and includes the following spaces:

- Learning Commons
- Quiet Distributed Reader Seating
- Quiet Reading Room
- Graduate Commons
- Faculty Commons
- Digital Media Lab
- Learning Studio
- Training Room
- Visualization Studios
- Fishbowl Classroom/Seminar Room
- Technology Sandbox
- Library Staff Space

INSTITUTE FOR EMERGING ISSUES

The IEI spaces give the public policy "think and do tank"a place within the Hunt Library to call "home" while providing a venue for community engagement. The IEI's work involves a high degree of interaction with communities and stakeholder groups across the state, and will make a significant contribution in making the Hunt Building a resource for the entire University and for all of North Carolina. The IEI spaces will provide an environment for its staff to work and to interact with external stakeholders at a variety of scales. The spaces include:

- Gallery
- Multi-Purpose Space
- Small Group Meeting Room
- Working Group Meeting Room
- Executive-Level Conference Room
- IEI Staff Space

CHANCELLOR'S SPACES

The Chancellor's Spaces are the home in Centennial Campus for the College of Humanities and Social Sciences, acting as an incubator for activities that advance the pursuit of liberal arts education at NC State. Housing a range of organizations and individuals, the Chancellor's Spaces offers a set of flexible office suites and a shared common area to stimulate informal interaction and collaboration between the different groups.

- The Institute for Non-Profits
- The Graduate Student Professional Development Center
- The Center for Public Communication on Science and Technology (PCOST), and
- The Center for Advanced Human Inquiry (occupying 2 modules)
- Common/Shared Spaces

BUILDING LOBBY

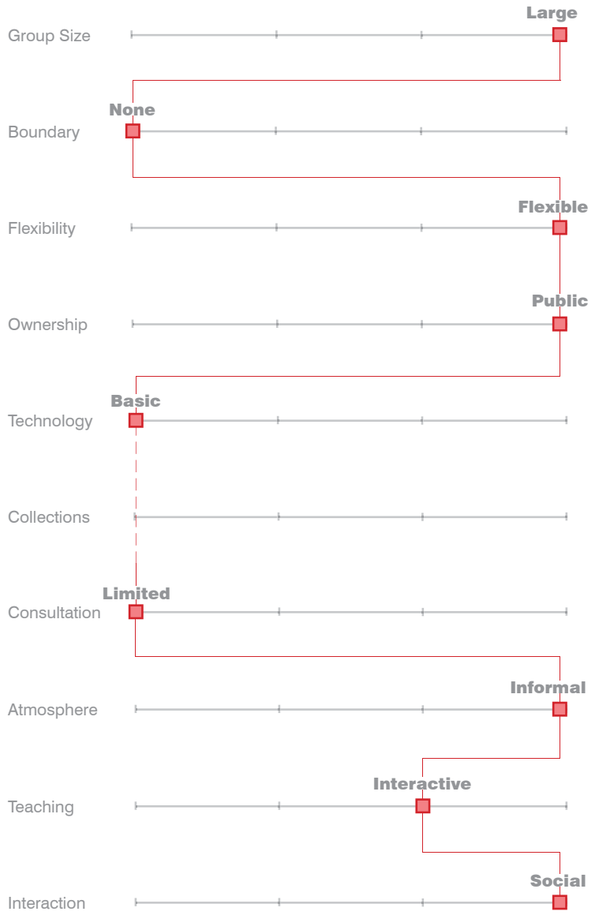
The building lobby is an active, welcoming space that provides access to the Hunt Library, the IEI Gallery, and shared meeting / event spaces within the building, including a large auditorium. It is both a place to move through, or to occupy for short periods of time. It includes an area to receive visitors that is outside of the traffic flow, a small exhibit space, a pre-function space for the larger rooms, a small café with limited seating, a grouping of support spaces, and an informal work area with seating for about 40 people. The design of the lobby must negotiate the need for clear wayfinding and access with the characteristics that will make it a vibrant and attractive place.

Capacity

~170 people (not including pre-function)

Key Adjacencies

- Hunt Library Commons
- Hunt Gallery
- Auditorium / Lecture Hall
- Lecture / Event Space
- Press Conference Room
- Executive-level Conference Room
- Chancellor's Spaces Suite



AUDITORIUM

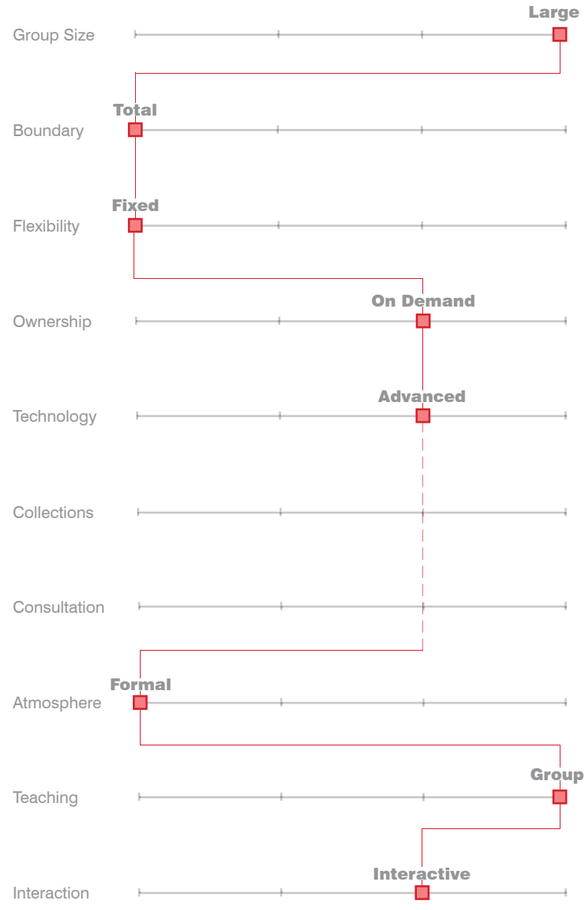
The auditorium is a prestigious gathering space that will serve all of Centennial Campus, complementing the existing spaces within adjacent buildings as well as the planned Hotel and Conference Center. The auditorium is a place for large lectures by distinguished speakers, special events, and conferences. The enhanced technology provisions must allow for the specific requirements of remote speakers and audiences. Its use for regularly-scheduled classes needs further investigation as there are potential conflicts for scheduling and with the required quality of finishes and equipment. It is located directly off the building lobby pre-function space and will need to carefully manage the traffic flow to and from it to avoid conflicts with flow to the Hunt Gallery and the Library.

Capacity

~400 people

Key Adjacencies

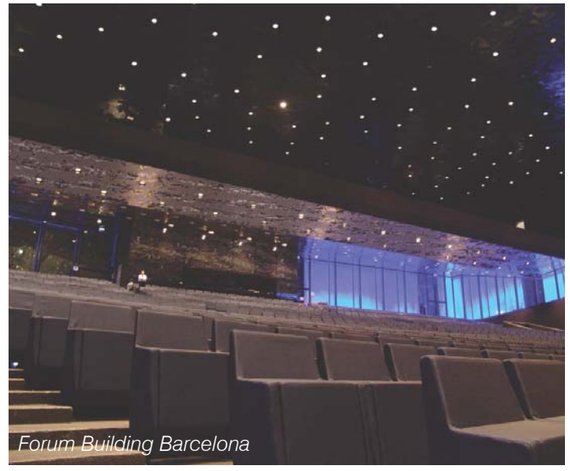
- Lobby pre-function space




Genzyme Headquarters


Minneapolis Central Library


Huntington University


Forum Building Barcelona

LECTURE/EVENT SPACE

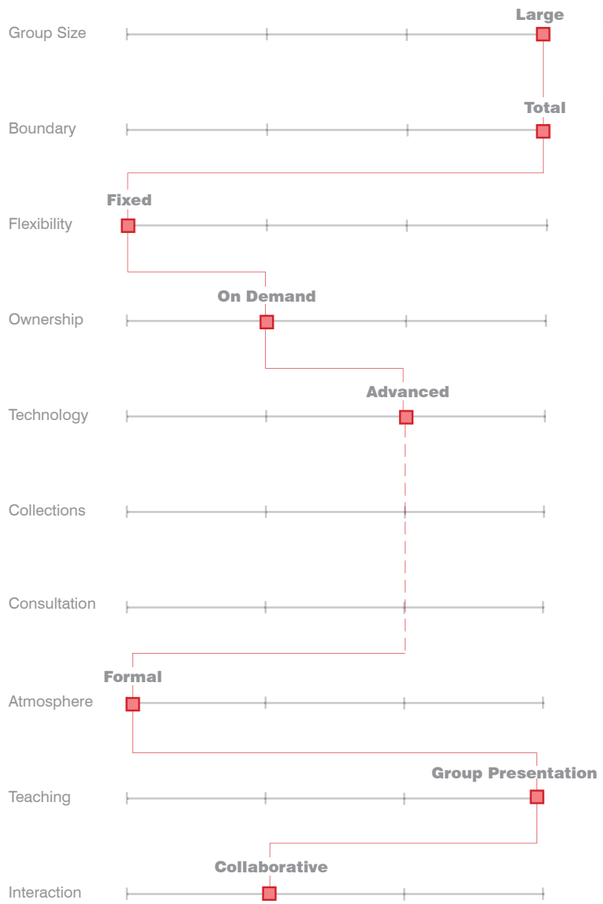
This space accommodates lectures, events, and meetings of up to 100 people. The space is located off of the lobby for shared use, has a sloped floor for good sightlines, fixed seating, and enhanced dual projection to enable two-way remote participation. This space is bookable on-demand and has upgraded finishes appropriate for smaller but distinguished speakers and audiences. The space is fitted with counter-like tables, laptop power at every seat. and creates a workshop environment for scientific presentations and discussions.

Capacity

100 people

Key Adjacencies

- Building Lobby



Common Spaces

SKYLOUNGE

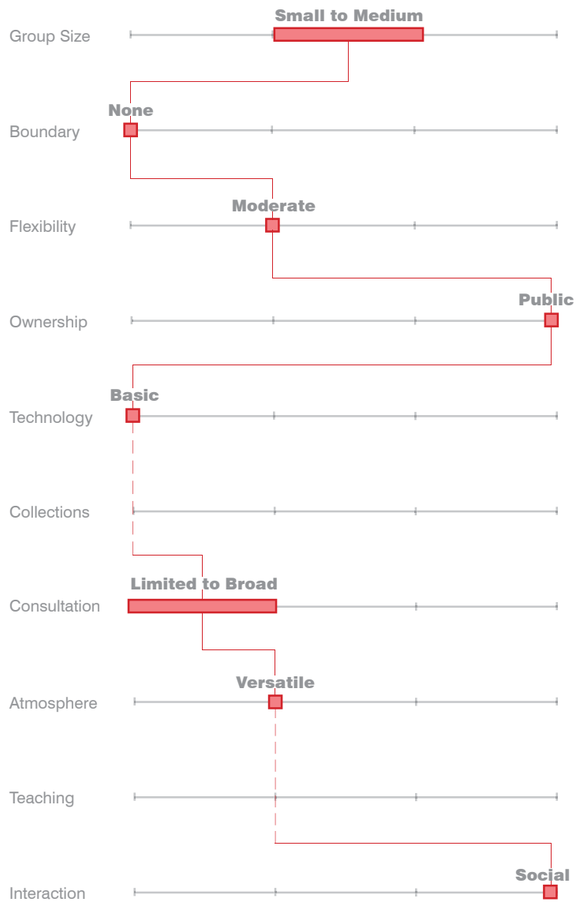
The SkyLounge is a user space within the Library located at the top of the building, offering views of the campus and Lake Raleigh. The location, views, and 24-hour food service (coffee, snacks, sandwiches, etc) will draw people up through the building and serve as a counterpoint to some of the larger and very lively spaces within the Library. This space will be easily accessible to IEI staff and visitors as well as Chancellor's space occupants using a system of passes / card access to be determined as the design progresses.

Capacity

~100 people

Key Adjacencies

- Upper Floor Terrace




Northwestern University


Parsons The New School for Design


Seattle Public Library


Mori Art Museum

5 Programming

LEARNING COMMONS

The Hunt Learning Commons is a lively setting for individual and collaborative work. It includes user spaces in open settings like lounge seating, table seating, booths, collaborative clusters, and workstations, as well as enclosed spaces for group study, practicing presentations, and gaming. Small browseable collections are distributed throughout the space for reference and leisure reading. The Commons allows users to situate themselves based on their preferred environment. This general use space is complemented by surrounding spaces (both enclosed and in adjacent niches/nooks) that meet more specialized needs. Library services and support will be provided at a single service point, complemented by roving / mobile librarians and touch-down/consultation spaces.

Capacity

~750 people

Key Adjacencies

- Building Lobby (visual access)
- Digital Media Lab
- Fishbowl / Seminar Rooms
- Learning Studio
- Training Room
- Visualization Studios

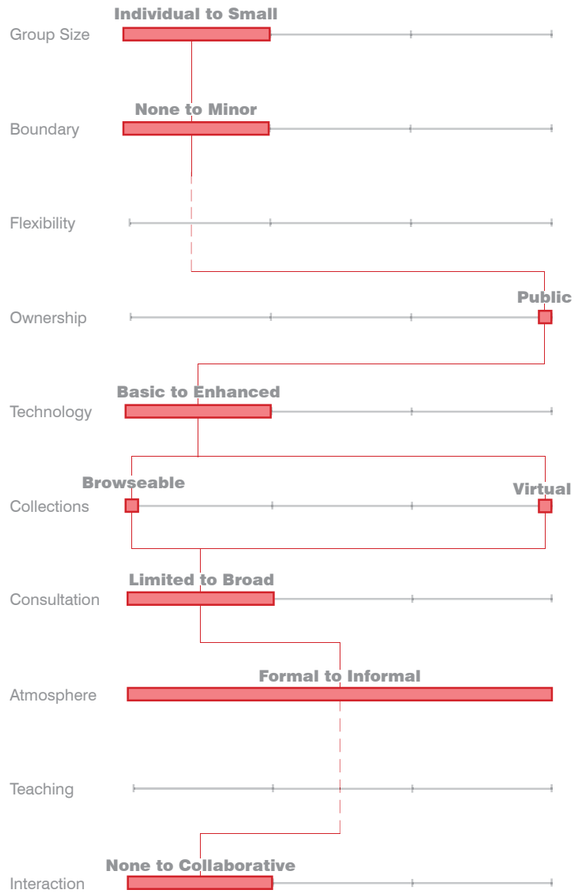
Open Spaces

- Leisure Reading Area
- Lounge Seating
- Visualization Studios
- Collaborative Work Stations
- Open Group Study Areas
- Semi-Private Niches

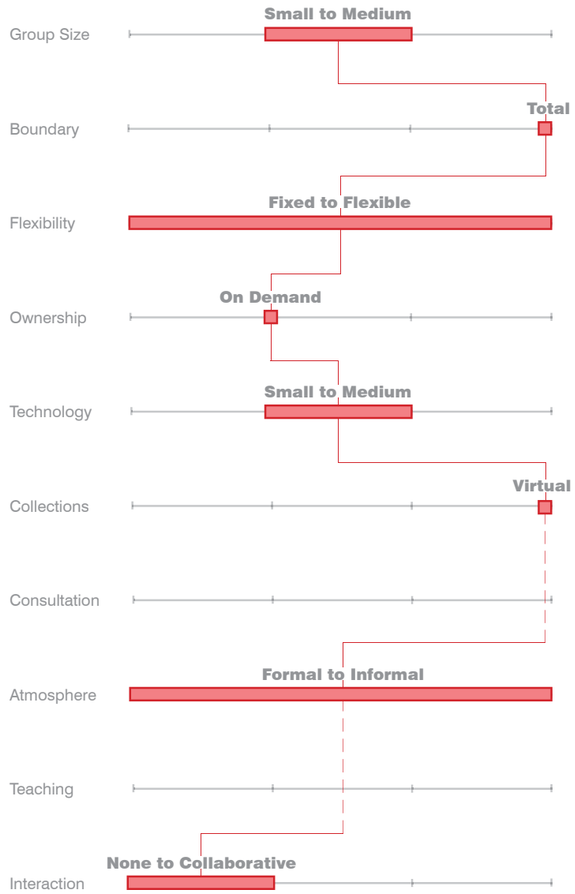
Enclosed Spaces

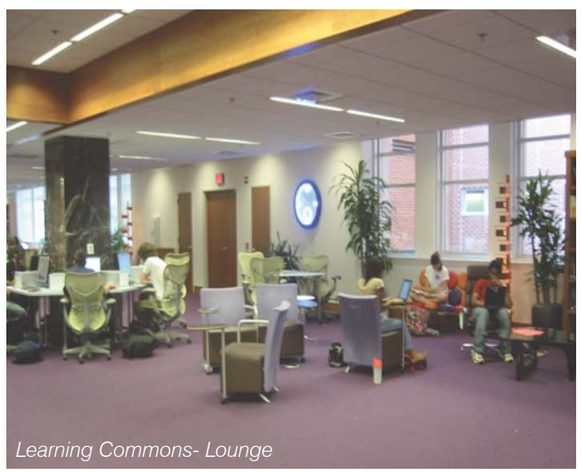
- Presentation Practice Rooms
- Gaming Room
- Group Study Rooms

Open Spaces



Enclosed Spaces




Learning Commons- Lounge


Learning Commons - Individual workspaces


Emory University- Collaborative Workspace


New York University- Group Workspace

QUIET DISTRIBUTED READER SEATING

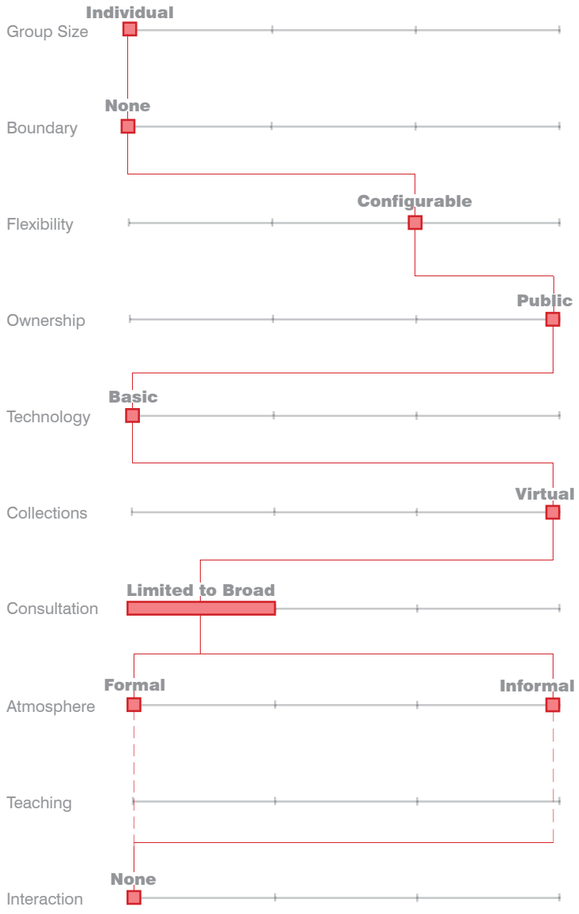
While lively, interactive settings are an essential part of the Hunt Library, they must be complemented by places for quiet, individual study. In addition to a enclosed space for this purpose (the Quiet Reading Room), there is also quiet seating distributed throughout the library, including lounge seats, napping chairs, and distributed work tables. While uniform in purpose, these areas will have a variety of settings and furniture types.

Capacity

~200 people

Key Adjacencies

Locate so as to complement other programs, including adjacent to the Learning Commons and away from the Quiet Reading Room



QUIET READING ROOM

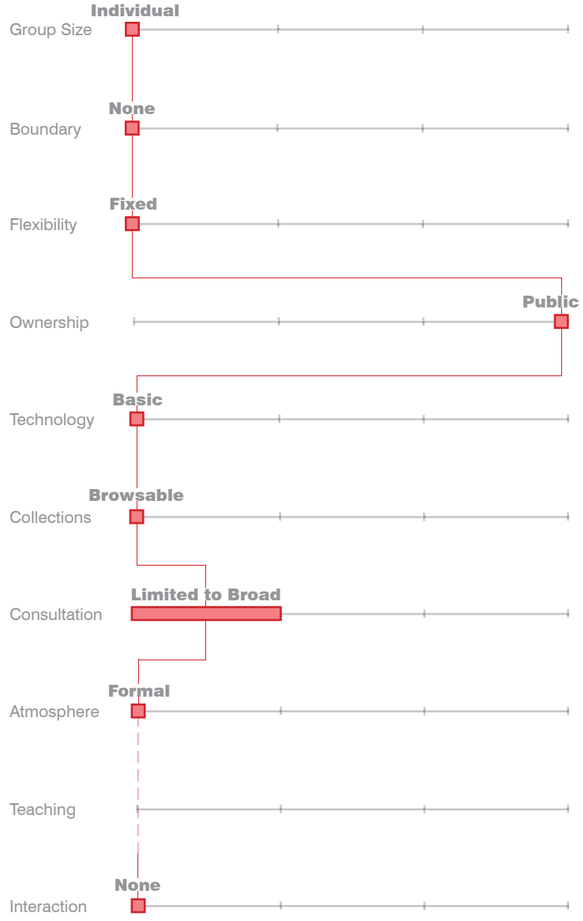
The Quiet Reading Room is a library user space that complements the lively setting of the Learning Commons with a calm, more traditional environment for research and study by students, faculty, and visitors. With seating primarily at large tables and the room edges/perimeter, the Quiet Reading Room is geared principally for individual study as well as for quiet group study in which students want to be 'alone together.' Ubiquitous power and data access are necessities, and touch-down spaces for consultation with library staff are also included. Interspersing browseable library collections can also be considered.

Capacity

~120 people

Key Adjacencies

- Faculty Commons
- Graduate Commons
- Browseable Library Collections (Monographs and Bound Journals)




Swarthmore College


Illinois Institute of Technology


New York Public Library


NC State

GRADUATE COMMONS

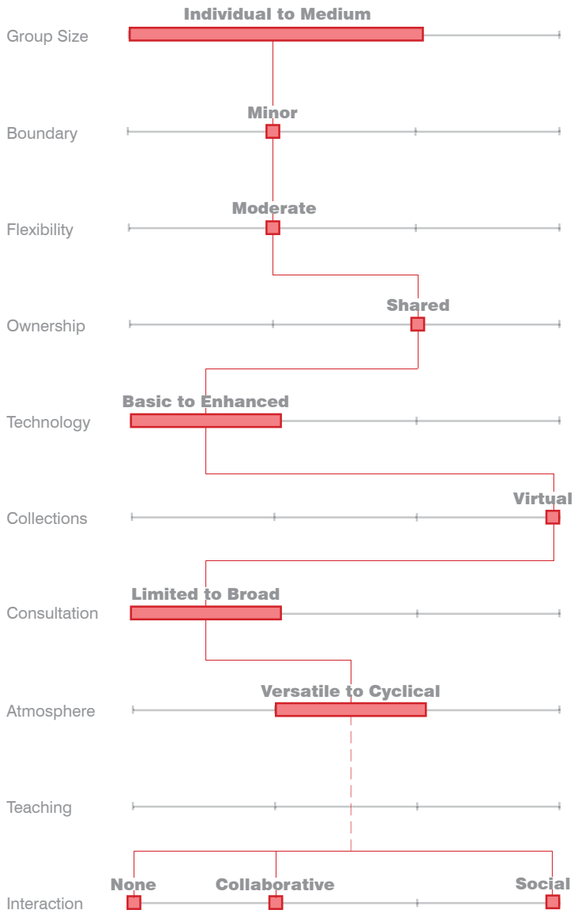
The Graduate Commons is a user space within the Hunt Library designed to meet the specific needs of Graduate Students. Accessible only to graduate students (via card access or similar system), the Commons contains a variety of individual and collaborative work settings. These spaces include both open spaces such as lounge setting, workstations, booths, and tables as well as enclosed rooms for group study and lockers.

Capacity

~200 people

Key Adjacencies

- Faculty Commons
- Quiet Reading Room
- Graduate Student Professional Development Center (will need to be reviewed with respect to library collections envelope)



FACULTY COMMONS

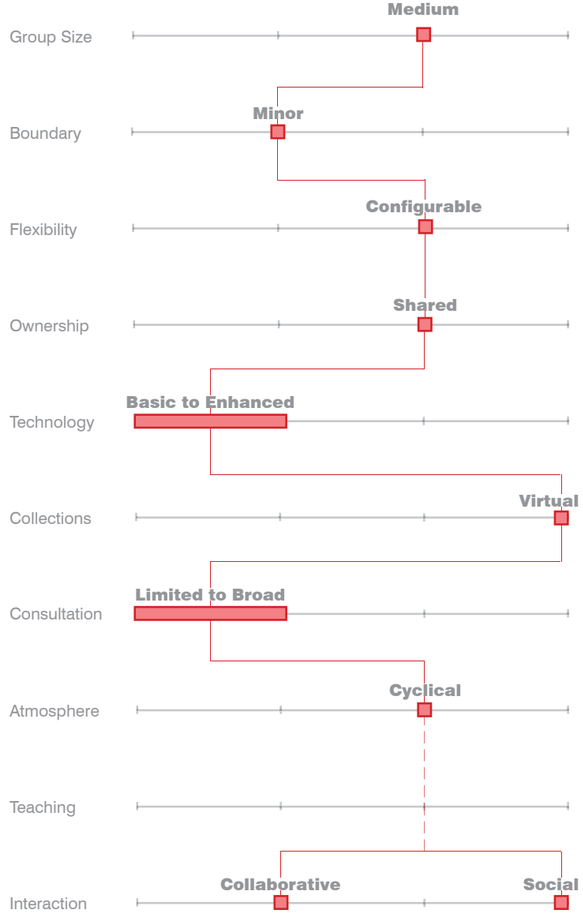
The Faculty Commons is a place for individual and collaborative work among University faculty and their guests. It incorporates spaces that are both social/collaborative as well as quiet sanctuary spaces where faculty can escape the activity of their departmental space. The Commons includes workstations, open table seating, bookable workrooms, small 'focus booths', meeting space, and support resources. The space is also particularly well-suited to supporting faculty as they move between campuses, enabling them to use scheduling gaps and downtime productively and can, in a sense, function akin to an airport lounge.

Capacity

~65 people

Key Adjacencies

- Graduate Commons
- Quiet Reading Room
- Browseable Library Collections (Monographs and Bound Journals)




Johns Hopkins University


Stanford University


BBC


University of Virginia

5 Programming

DIGITAL MEDIA LAB

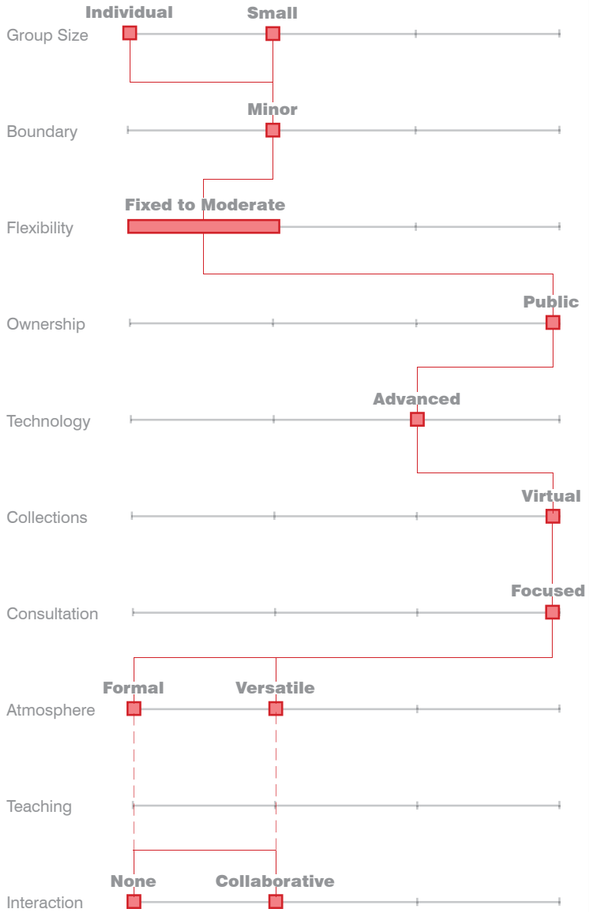
The Digital Media is a space for individual and collaborative work with digital media on dedicated technologies/equipment and with specialized support. This includes workstations, peripherals, and plotters as well as studio environments for media production. A Usability Lab is used to understand human-computer interactions in developing and testing hardware and software. The relationship of this specialized space to the Learning Commons needs further investigation as to what degree of separation is appropriate and how to maintain its focus while promoting its use and minimizing user 'switching costs' in moving between spaces.

Capacity

~45 people

Key Adjacencies

- Learning Commons
- Visualization Studios
- Technology Sandbox



LEARNING STUDIO

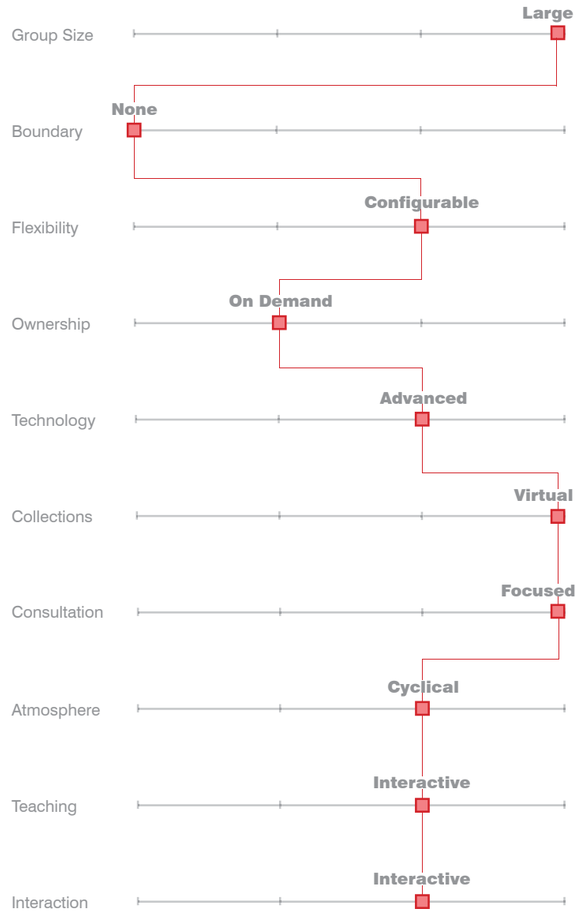
The Learning Studio is learner-focused classroom configured to enable small sub-group work within the context of a larger class. By engaging students in interesting problems that they solve collectively, instructors can then wander through the rooms and engage with individuals and groups directly - sharing insights, issues, and solutions from one group or individual with the whole class. The Studio is bookable on-demand for specific courses and library instruction and can also be used as a user space in off-hours.

Capacity

~55 people

Key Adjacencies

- Learning Commons
- Fishbowl / Seminar Rooms
- Training Room




Northwestern University


NC State


Massachusetts Institute of Technology


University of Melbourne

TRAINING ROOM

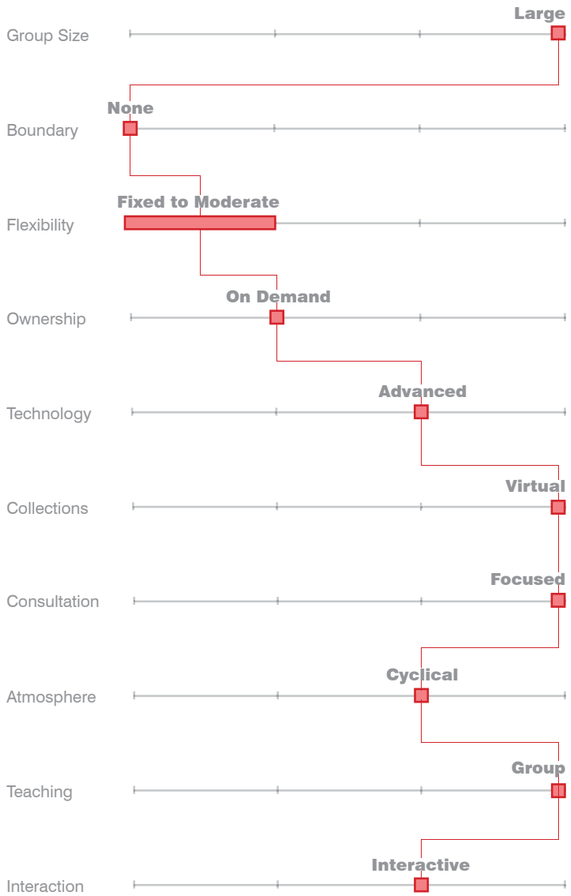
The training room is a flexible space for library user instruction and orientation. Moveable furnishings allow for rows, “U-shaped” and cluster table arrangements and the space is sub-dividable into 2 halves. Equipped with technology to enable remote participation and content capture, the training room is bookable on-demand for library instruction and can also be used as a user space in off-hours.

Capacity

30 people

Key Adjacencies

- Learning Commons
- Learning Studio
- Fishbowl / Seminar Rooms



VISUALIZATION STUDIOS

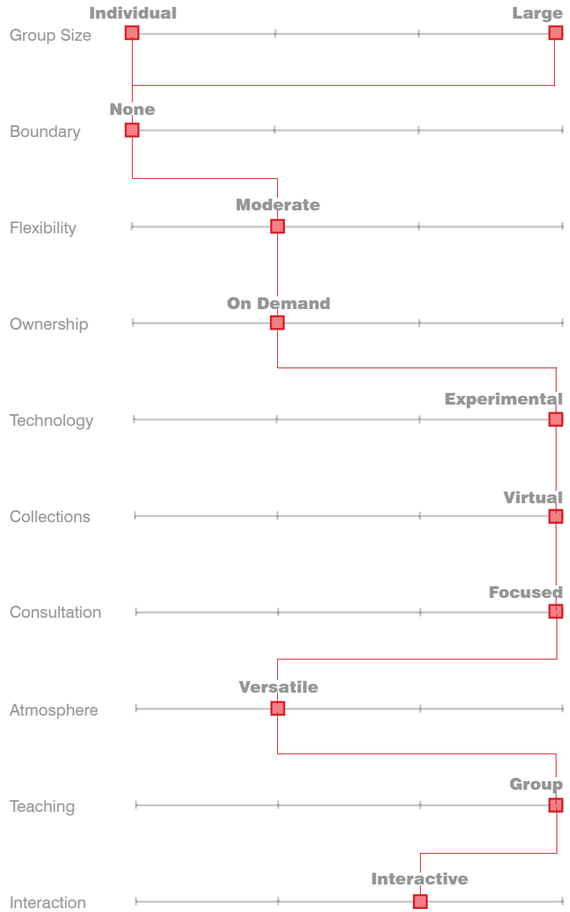
As the centerpiece of an engineering-focused campus, the Hunt Library must provide spaces for users to come together within and across different departments to visualize complex data and unique problems. These visualization studios offer movebable seating, multiple projection, and AccessGrid-type capability for engaging remote participants and incorporating multiple data sources / feeds.

Capacity

- Large Studio: 30 people
- Small Studio:6 people

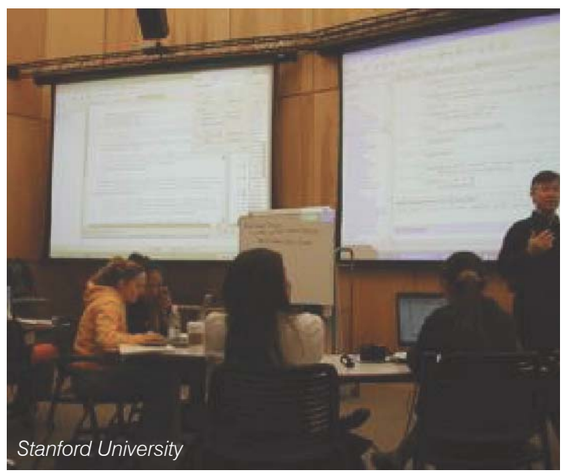
Key Adjacencies

- Learning Commons
- Digital Media Lab
- Technology Sandbox




Huntington University


University of Chicago


Stanford University


University of Chicago

FISHBOWL CLASSROOM/SEMINAR ROOM

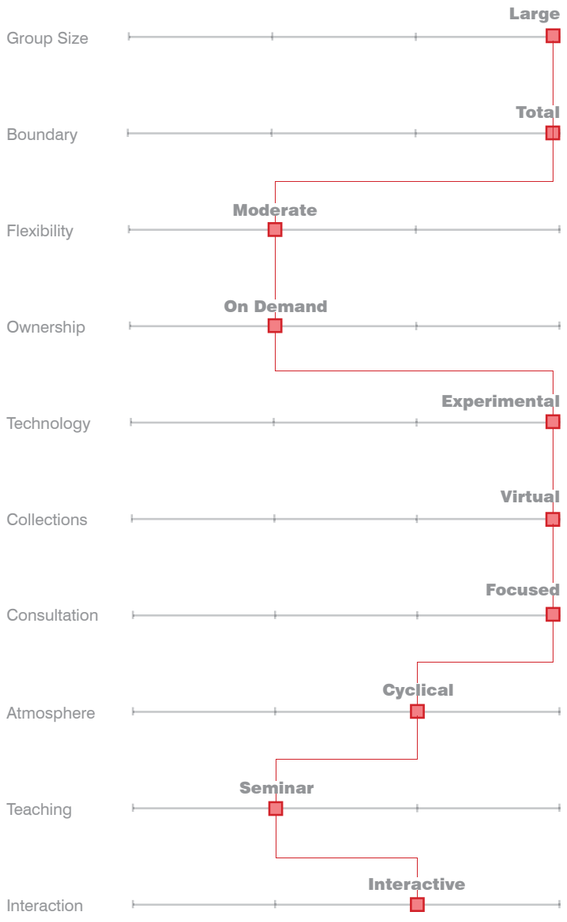
The Fishbowl Classroom is a specially-designed and equipped seminar room within the Hunt Library designed to promote an open approach to creating, sharing, and storing content. In exchange for upgraded technology, settings, and support, users agree to 'work in a fishbowl' so that other users can be exposed to and in turn influence what they are doing – whether a group project or a class discussion. An additional seminar room with a different location and without the transparent enclosure is also provided within the library, and both spaces are bookable on-demand and available for general student use off-hours.

Capacity

20 people each

Key Adjacencies

- Learning Commons
- Learning Studio
- Training Room



TECHNOLOGY SANDBOX

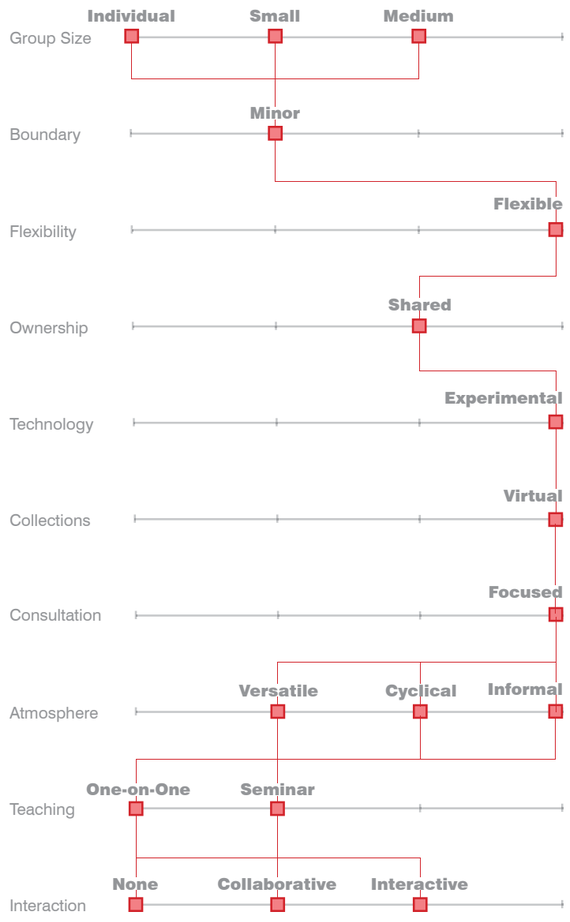
The Technology Sandbox is a place for students and faculty to experiment and play with new and out-of-reach technologies in a hands-on way. It has flexible furnishings to allow for multiple configurations and seating arrangements and has technology Infrastructure with good power and data distribution to accommodate the latest developments, e.g. 3D projection, tangible interface work surfaces, high resolution monitors, etc.

Capacity

24 people

Key Adjacencies

- Learning Commons
- Visualization Studios
- Digital Media Lab




Stanford University


JWT New York


Massachusetts Institute of Technology


New York University

LIBRARY STAFF SPACE

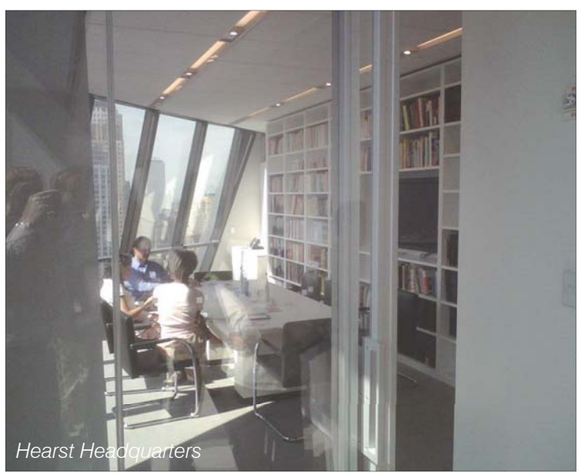
The Library staff space is driven by two key objectives: first, to enable the co-location of all library staff to enable better connectivity and knowledge-sharing, and second, to provide an open, collaborative feel that is well supported by shared meeting and project spaces. The individual workspaces will primarily be assigned to library staff with a ratio of about 1 office for every 6 workstations, complemented by shared spaces and touch-down spaces supporting library staff moving between campuses and locations. The functional units within the spaces are Library Administration, Research and Collections, Access and Delivery Services, Digital Library, information Technology, Technical Services, and these are organized around a collaborative core (with adjacencies as indicated as shown on page XX) and with distributed collaboration spaces to create “workplace neighborhoods” that correspond to functional units. This workspace will serve as the homebase for staff that are more mobile and roving throughout the library to provide support where needed or at a designated service point.

Capacity

145 people

Key Adjacencies

- Library User Space
- Staff Terrace
- Service access to loading dock and associated service spaces, server room, and IT workroom


Hearst Headquarters


BBC

EXTERIOR SPACES

The Hunt library aspires to be integrated with the surrounding landscape and to connect inside and outside. A number of exterior (or semi-exterior) spaces are planned for the building, including a bounded exterior space (like a courtyard or a screened-in porch) and an upper floor terrace. These library user spaces are within the library collections envelope, provide power and data access and address climate-control issues for adjacent collections spaces. In addition, a private terrace is available to Library and IEI staff.

Capacities

- Bounded Exterior Space: 65 people
- Upper-floor Terrace: 70 people
- Staff Terrace: 20 people

Key Adjacencies

- Upper Floor terrace adjacent to Skylounge
- Staff Terrace adjacent to Library Staff and IEI Staff


De Young Memorial Museum


Santa Clara University


Deacero Corporate Headquarters

GALLERY

The Gallery space will explain IEI's work by presenting a compelling picture of North Carolina's legacy of policy leadership and offering stimulating observations of the state's future. The gallery will allow new generations of leaders to explore their own options for engaging in complex and serious issues facing our state. The gallery will be a centerpiece and public face of IEI.

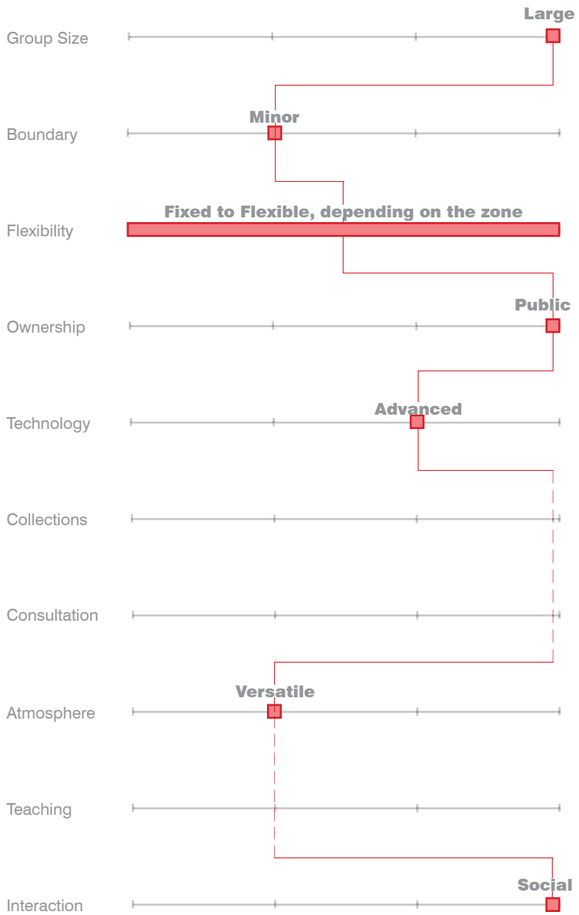
Capacity

250 people seated

Key Adjacencies

- Building Lobby
- Working Group Rooms
- Small Group Meeting Rooms
- Multi-purpose Space
- Executive Level Conference Room
- Press Conference Room
- Furniture Storage

- Catering Kitchen



MULTI-PURPOSE SPACE

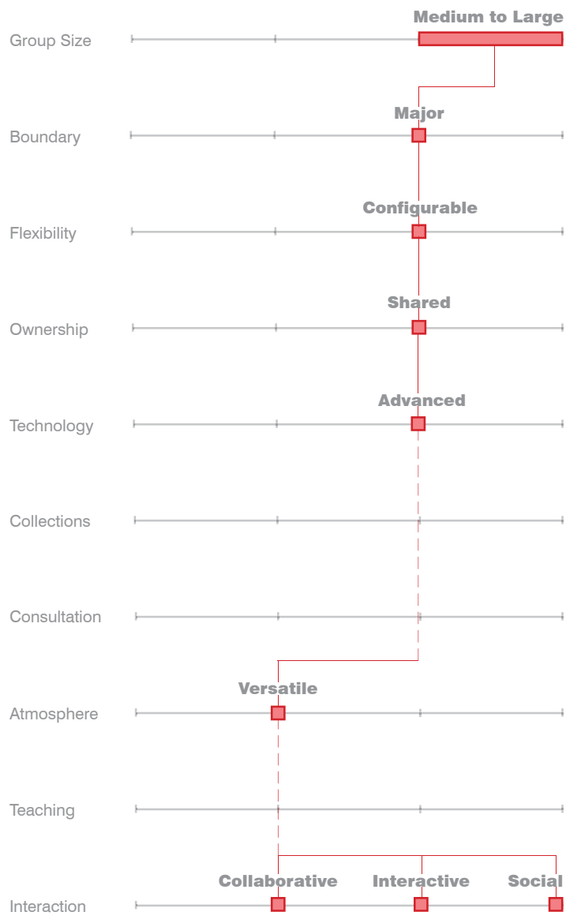
This multipurpose space is used for meetings, workshops, and breakout sessions involving participants in other, adjacent spaces. Configured for versatility in supporting multiple activities and group-sizes, the room has a flat floor and is sub-dividable into 4 sections. Located off the Hunt Gallery, the space will be used extensively by the IEI but can be shared with other groups when not in use.

Capacity

100 people

Key Adjacencies

- Hunt Gallery
- IEI Staff Space
- Working Group Meeting Rooms
- Small Group Meeting Room



Newseum

Museum of Modern Art


New York Times Headquarters

SMALL GROUP MEETING ROOM

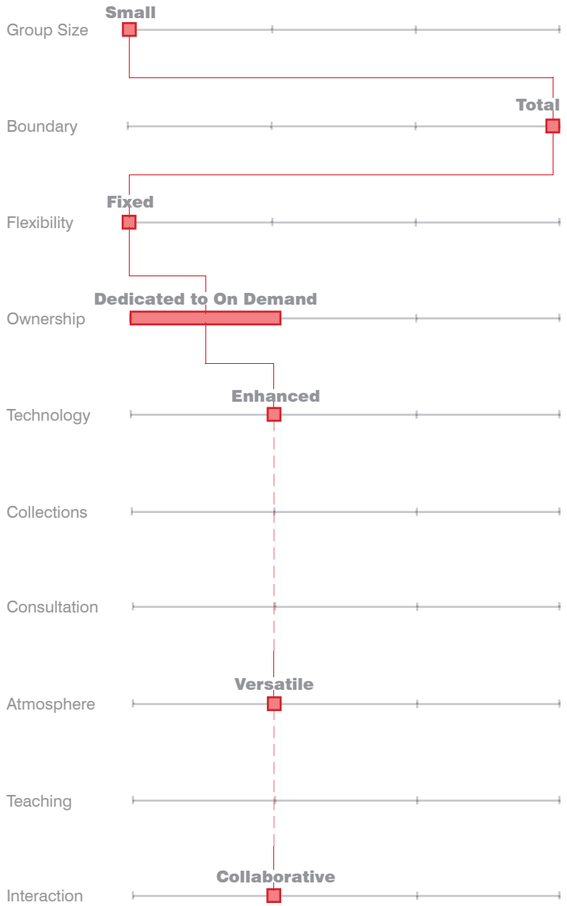
Meetings with small groups are an essential part of how the IEI develops policy positions and builds consensus on key issues affecting North Carolina. These rooms, located off the Hunt Gallery, provide settings for conversation within a small group of 6 to 8 people and incorporate dual projection technology to bring in remote participants as well as project imagery and notes simultaneously.

Capacity

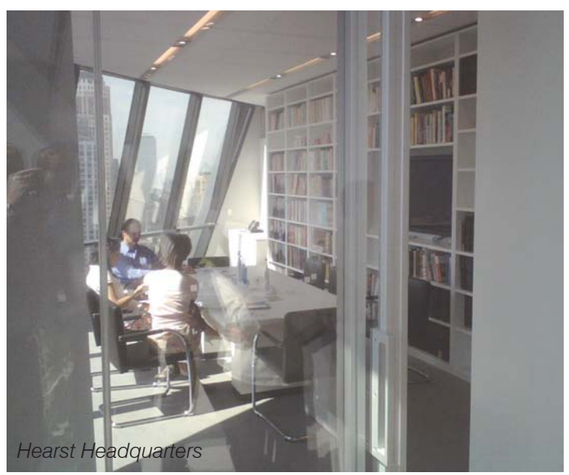
8 people

Key Adjacencies

- Hunt Gallery
- IEI Staff Space
- Working Group Rooms




Coover-Clark & Associates


Hearst Headquarters

WORKING GROUP MEETING ROOM

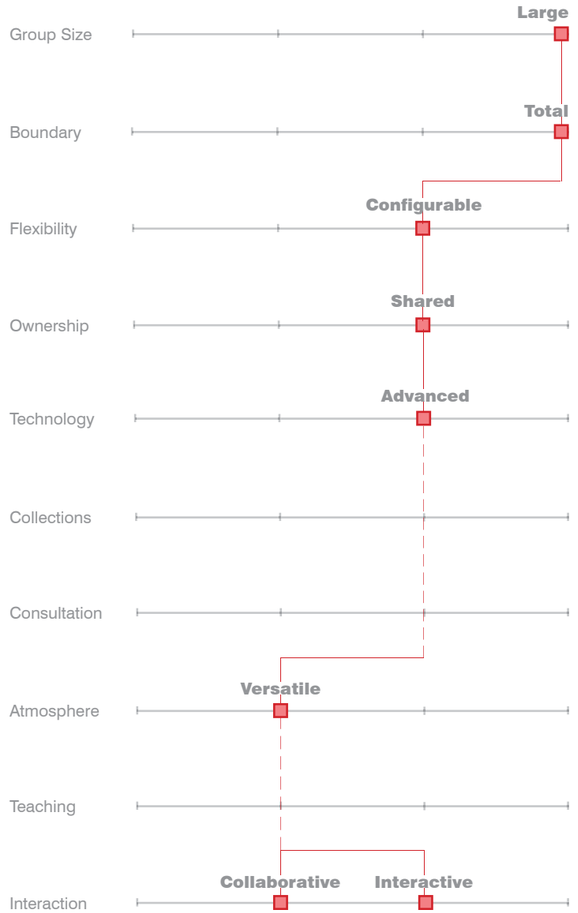
Meetings with 'Working Groups' of about 25 are an essential part of how the IEI develops policy positions and builds consensus on key issues affecting North Carolina. These rooms support this activity both in location and configuration. The rooms (which should be grouped together) are located so as to offer occupants a 'sense of removal' from day-to-day activities within the building and they are configured in a seminar style to promote conversation, consensus, and a sense of safety (for dealing with sensitive subject-matter). They are situated as to provide maximum daylighting. They are also equipped with technology to support remote presenters and audiences as well as to capture the content and distribute the audio and video.

Capacity

25 people each

Key Adjacencies

- Hunt Gallery
- IEI Staff Space
- Multi-purpose space
- Small Group Meeting Room




Adobe Headquarters


Corporate Conference Room

EXECUTIVE-LEVEL CONFERENCE ROOM

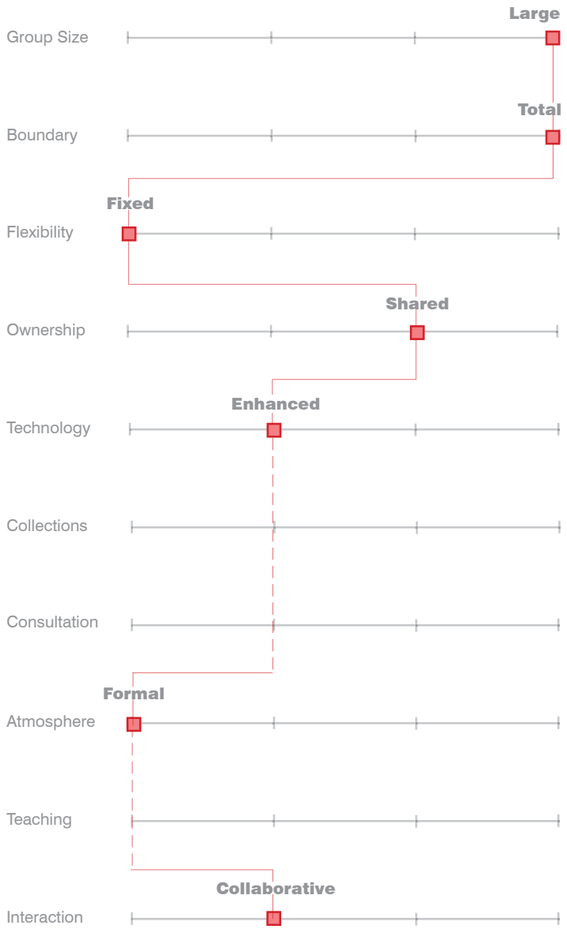
The Executive Conference Room is a meeting space with enhanced finishes and technology to enable hosting special meetings with distinguished guests as well as board meetings. Located off the lobby for easy visitor access, the space is shared by all building occupants but only bookable for appropriate uses/ occasions. Its configuration is based on having two 'rings' of seating – one for those at the central table and one at the room perimeter for the supporting cast. This room can also serve as a holding space for distinguished visitors/VIPs and will include a dedicated entry into the adjacent press conference space. Direct access to the Hunt Gallery should also be considered

Capacity

45 people

Key Adjacencies

- Building Lobby
- Press Conference Space
- Hunt Gallery



IEI STAFF SPACE

The space for the staff of the Institute of Emerging Issues includes assigned and shared settings for both individual and collaborative work. The key organizing characteristics for the space are: first, an open collaborative feel (complemented by appropriate support and meeting spaces), and second, a project team area that can accommodate the whole staff, is centrally-located within the space, and functions as a hub for sharing information and collaborating. The work settings will include both open workstations and enclosed offices, meeting spaces for smaller, more spontaneous meetings, and shared spaces for faculty fellows, interns, and longer-term visitors. The IEI staff space is close to the Hunt Gallery and meeting spaces, but adequately removed to avoid unnecessary intrusions and to enable staff to work productively.

Key Adjacencies

- Hunt Gallery
- Working Group Meeting Rooms
- Multi-purpose Room
- Small Meeting Rooms
- Lecture / Event Space
- Staff Terrace


MTV Headquarters


Duke University


BBC

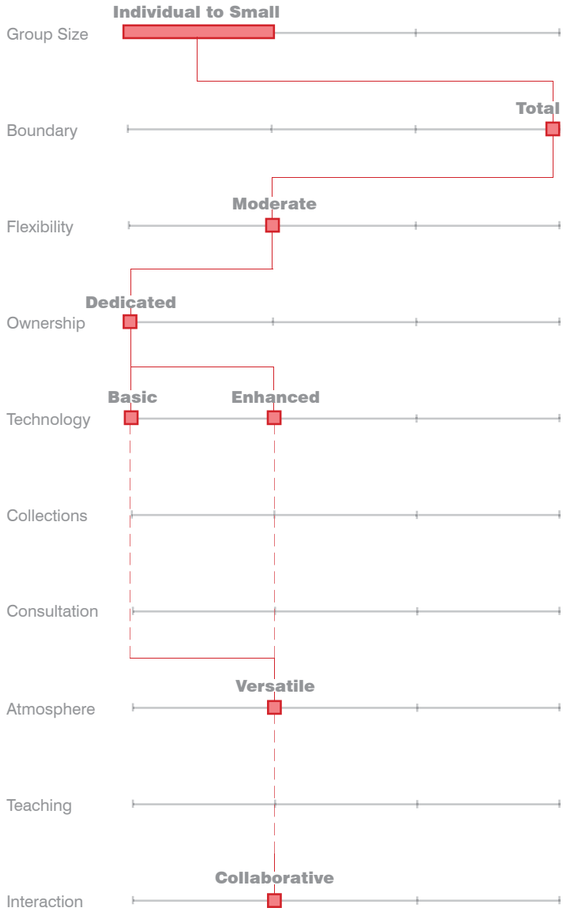

CBC

CHANCELLOR'S SPACES

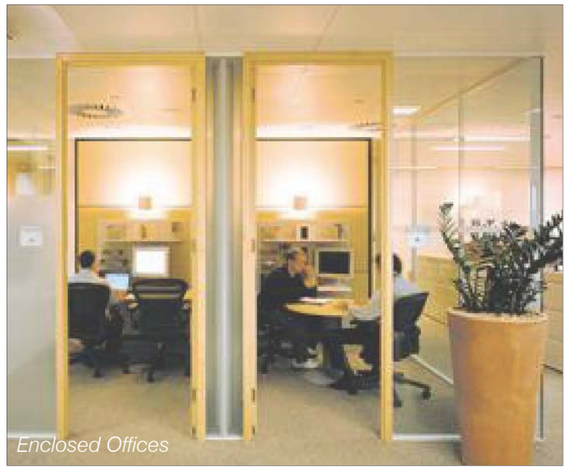
The Chancellor's Spaces within the Hunt Library are a cluster of individual and collaborative workspaces that establish a Humanities presence on Centennial Campus. They have a public presence off the building lobby and are organized as a series of suites that are modular and generic-enough in character so that as programs grow and progress, other groups can easily use the vacated space. Each module consists of individual work settings that are both open and enclosed, as well as small meeting rooms, project rooms, and open areas to be shared among the suites. These programs will have a range of public engagement from semi-public Institutes and Centers to more private, retreat-like spaces for faculty on sabbatical. Regardless, the occupants of the Chancellor's spaces will be able to not only use these spaces but also benefit from building-wide features such as the library space, staff, and collections as well as cafes and meeting rooms.

Key Adjacencies

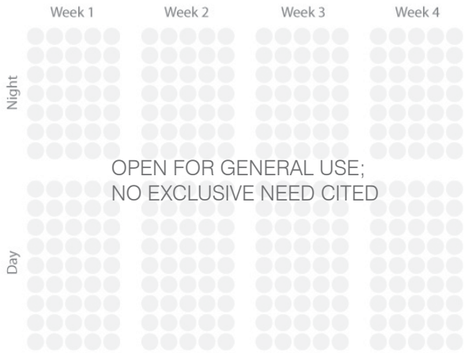
- Building Lobby
- Easy access to Graduate Commons and Faculty Commons.



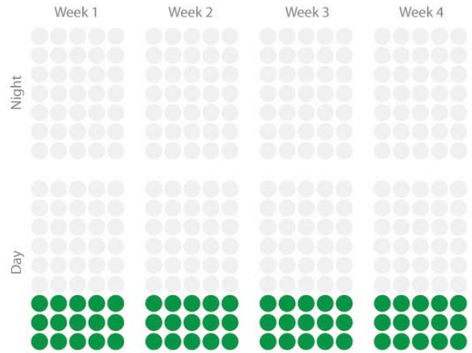
NBBC



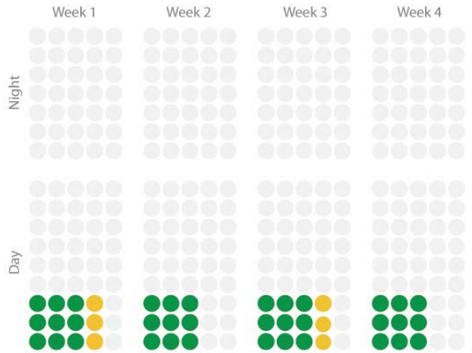
Enclosed Offices



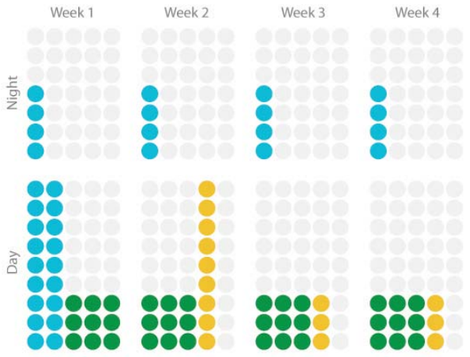
ENTRY ZONE
WORKING LOBBY



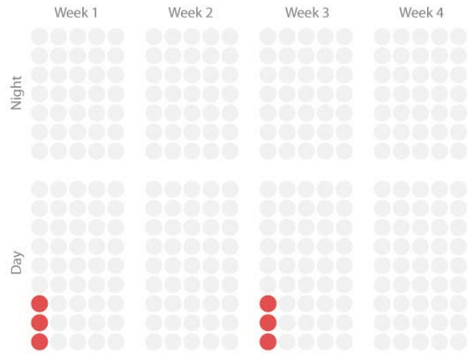
ENTRY ZONE
RECEPTION AREA
CAPACITY: 30 PEOPLE



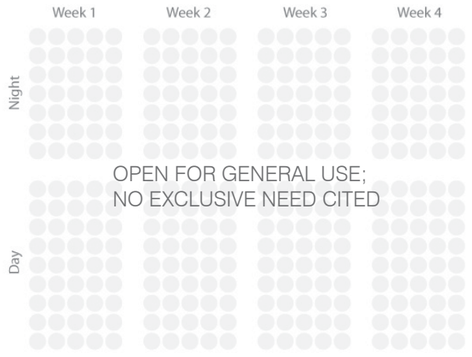
ENTRY ZONE
LOBBY-PREFUNCTION
CAPACITY: 100 PEOPLE



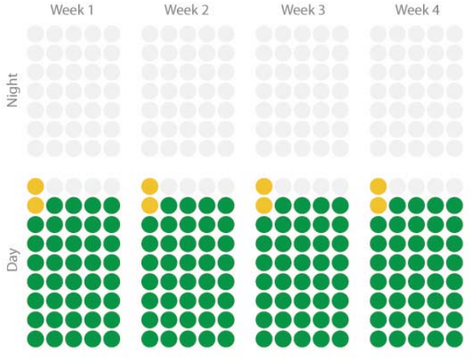
ENTRY ZONE
AUDITORIUM/LECTURE HALL
CAPACITY: 400 PEOPLE



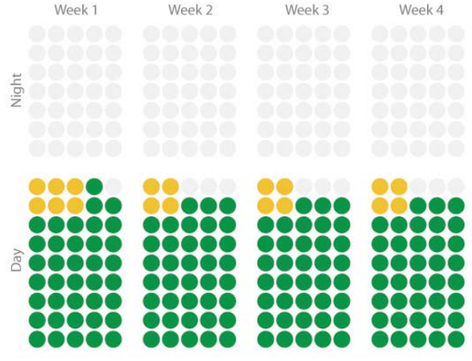
ENTRY ZONE
PRESS CONFERENCE SPACE
CAPACITY: 50 PEOPLE



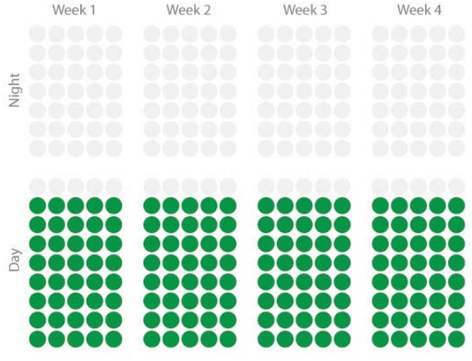
HUNT COMMONS
SKYLOUNGE



LIBRARY CONFERENCE SPACE
MEDIUM MEETING ROOMS
CAPACITY: 12 PEOPLE



LIBRARY CONFERENCE SPACE
LARGE MEETING ROOMS
CAPACITY: 25 PEOPLE



LIBRARY CONFERENCE SPACE
LIBRARY PROJECT TEAM ROOMS
CAPACITY: 15 PEOPLE

5 Programming

Shared Meeting Space Usage Forecasts

A key feature of the Hunt Building is the function of shared meeting spaces and how they are shared among the University, Library, IEI, and the Chancellor's Spaces.

To better understand how each meeting space can be shared successfully, a questionnaire was completed by representatives from the Library, IEI, and Chancellor's Spaces. The questionnaire asked each representative to articulate how much demand there would be for exclusive use of each shared meeting space. For each use, the frequency and duration were also defined.

The responses of the questionnaire were compiled and analyzed to gain an understanding of the total demand for reserved use in each shared meeting space. The demands for booked uses are represented in the series of graphics to the left.

FINDINGS

The charts reveal that the collective projected demands for booked use of shared meeting spaces vary widely.

On one end of the spectrum are the Entry Zone and the Sky-Lounge, as it is commonly understood that they are spaces that are open for general access and should not be used for regularly occurring, scheduled events.

Conversely, certain spaces like the Lecture/Event Space and the Multi-Purpose Space have been identified by the Library, IEI, and Chancellor's Spaces as ideal for a variety of events. Such demand reflects a particular need for venues that can host approximately 100 attendees.

LEGEND

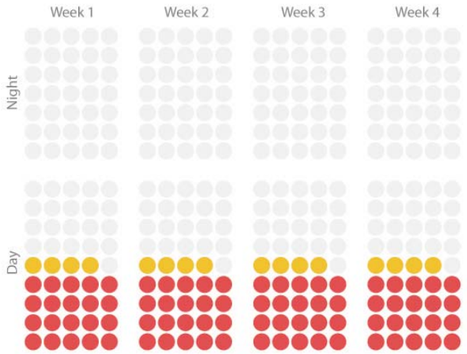
- The graphic represents a typical month of usage
- Each dot represents 1 hour of time
- Each column of dots represents a day, divided into 9 daytime hours and 7 nighttime hours
- Each week consists of 5 days
- The colored dots represent forecasted exclusive need for the space, with the colors representing the following:

● = **Common:** 1 hr of reserved time

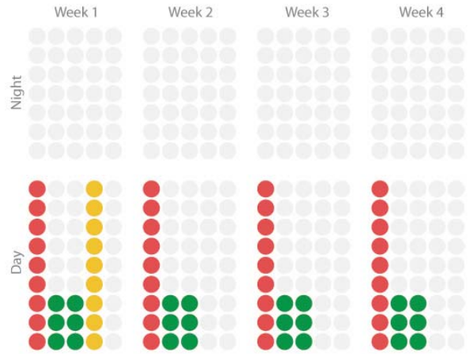
● = **Institute for Emerging Issues:** 1 hr of reserved time

● = **Library:** 1 hr of reserved time

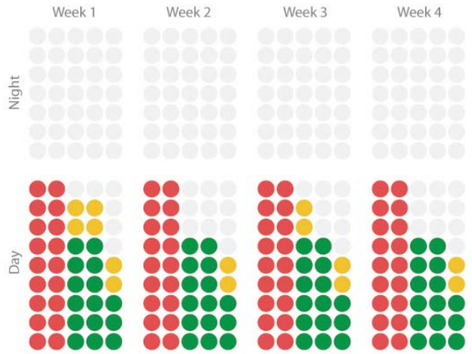
● = **Chancellor's Spaces:** 1 hr of reserved time



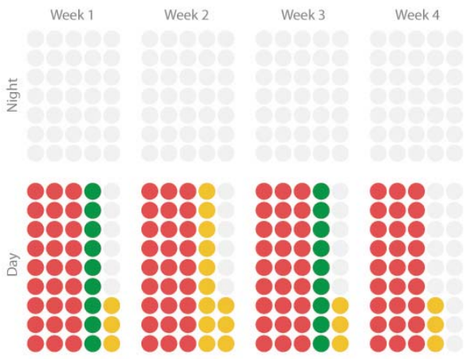
IEI SPACES
SMALL GROUP MEETING ROOMS
CAPACITY: 4 PEOPLE



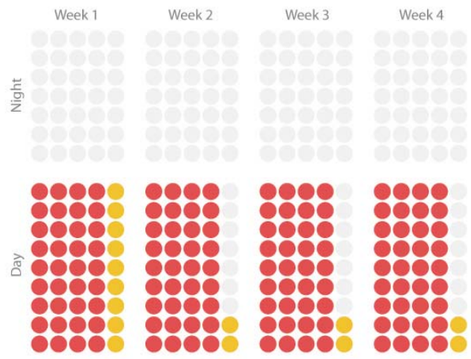
IEI SPACES
EXECUTIVE-LEVEL CONFERENCE ROOM
CAPACITY: 45 PEOPLE



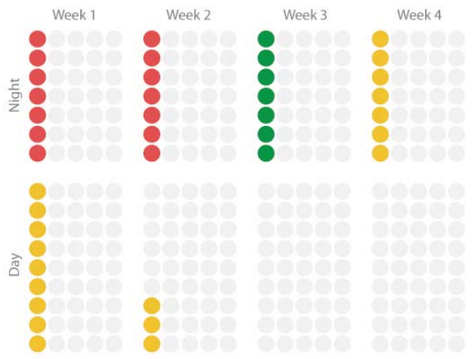
IEI SPACES
LECTURE/EVENT SPACE
CAPACITY: 100 PEOPLE



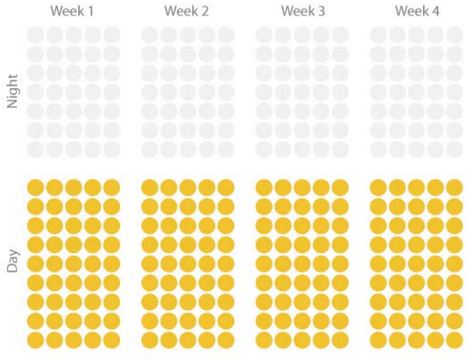
IEI SPACES
MULTI-PURPOSE SPACE
CAPACITY: 100 PEOPLE



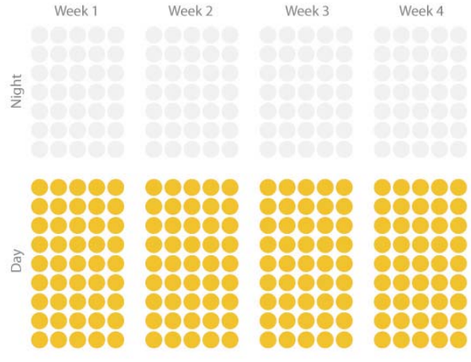
IEI SPACES
WORKING GROUP MEETING ROOMS
CAPACITY: 25 PEOPLE



IEI SPACES
IEI GALLERY
CAPACITY: 250 PEOPLE



CHANCELLOR'S SPACES
PROJECT WORK ROOMS
CAPACITY: 12 PEOPLE



CHANCELLOR'S SPACES
ENCLOSED MEETING ROOMS
CAPACITY: 10 PEOPLE

LEGEND

- The graphic represents a typical month of usage
- Each dot represents 1 hour of time
- Each column of dots represents a day, divided into 9 daytime hours and 7 nighttime hours
- Each week consists of 5 days
- The colored dots represent forecasted exclusive need for the space, with the colors representing the following:
  - = **Common:** 1 hr of reserved time
  - = **Institute for Emerging Issues:** 1 hr of reserved time
  - = **Library:** 1 hr of reserved time
  - = **Chancellor's Spaces:** 1 hr of reserved time

5 Programming

A Day in the Life

The Hunt Library can be defined not only by its architecture and physical characteristics, but also by the activities of the people who occupy it. The Hunt Library will be a hub of diverse groups and activities, serving as a focal point for the social and academic life of the NC State community. The following profiles are twelve short vignettes, illustrating many of the possible roles the Hunt Library can play in the lives of its students, faculty, staff, and visitors.

A VISITOR TO THE IEI:

Tamara Johnson, a representative from the North Carolina Department of Commerce, is visiting the IEI for a discussion on textiles and trade. After parking in the nearby parking deck, she walks along the Oval and enters the Hunt Building through the main entrance. As Tamara enters the lobby, a greeter approaches her and offers some assistance. After walking Tamara over to the electronic displays, the greeter gives Tamara a building map and points her in the direction of the Hunt Gallery. Before going to the gallery, Tamara decides to get a cup of coffee and is pleased to see that all coffee sold at the café is certified as fair-trade, an issue important to her and pertinent for today's meeting, which covers globalization and trade policy, IEI's focus for the year.

After sitting for a few minutes at a café table to catch up on emails in her Blackberry, Tamara heads toward the Hunt Gallery to browse the exhibits and then proceeds to a working group meeting room. There, a two-hour meeting is convened to discuss textiles and trade with twenty other meeting participants, 3 of whom are connecting remotely via video conference. IEI staff members facilitate the session, mixing open discussion with projected visual aids that tell the story of textile trade policy and its impact on North Carolina. By the end of the meeting, she finds common ground with John, a representative from the local chamber of commerce.

After the meeting, the two go up to the SkyLounge for a chat and quick lunch. They first enter the library, showing the access pass they were given during the meeting, and head straight to the elevator, located just opposite the library entrance. After enjoying their light meal, Tamara and John go back down toward the lobby, take time to wander through the Hunt Gallery, and later leave to return to their respective offices.

IEI STAFF

Eric, a new addition to the research team at the IEI, starts his day off early with a quick jog along Lake Raleigh before heading into the office. After a quick shower and change in the building's shower facility, Eric passes by the Hunt Gallery on the way to the main IEI workspace. He stops by the lounge, where he leaves his lunch in the refrigerator and picks up a cup of tea, and settles into his desk. Although recently he has been spending much of his time at his desk working on research for the upcoming Forum on globalization and trade policy, Eric finds that working in one of the office's focus booths allows him to concentrate on writing. In addition, because he is often contacting a range of partners and stakeholders, the focus booth allows him to have lengthy phone conversations without disturbing his fellow team members.

After lunch, Eric joins an internal meeting in the project team area to review research performed to-date. He is briefed on next steps for the upcoming week and joins his coworker Karen to a meeting in the working group meeting room. Sitting in on a policy discussion session, Eric observes while Karen facilitates the meeting, taking note of potential themes and topics which may influence the direction of his research. The meeting concludes and walks across the lobby over to the library.

Following up on an earlier conversation with a library staff member at the service point, Eric returned for an appointment with a subject specialist librarian to find appropriate resources to explore the domestic consequences of a textile trade agreement established between the US and China in 2005. Eric is visits the subject specialist librarian at his desk upstairs in the library staff area and is pointed towards a series of materials that he may find helpful. Eric returns downstairs to the service point to pick up several books retrieved from the library's automated retrieval system and checks them out using his borrowing privileges as an IEI staffer. With the work day coming to an end, Eric has just enough time to return to the office and follow up on emails he received while away. He places the borrowed books in his drawer and packs up, heading home for the night.

FACULTY MEMBER IN THE CENTER FOR ADVANCED HUMAN INQUIRY

Kathryn always starts the day early at her office in the Center for Advanced Human Inquiry. A faculty member in the anthropology department, Kathyrn is spending her year-long research sabbatical at her dedicated office space within the Chancellor's Spaces. Kathryn takes advantage of the peace and quiet in the office suite to finish a draft report she has been working on for the last three weeks. Apart from the murmurs of a phone conversation in the office next door, Kathryn is able to keep distractions at bay. After putting the last touches on the paper, she knocks on the door of a fellow faculty member, Karen, who also has an office at the Center for Advanced Human Inquiry and go upstairs to the SkyLounge to honor a long-standing promise to have lunch.

The atmosphere at the SkyLounge is noticeably more active than back at the office, providing a welcome respite from the solitude of writing. Today, like most other days, the SkyLounge is populated with a diverse mix of people, including students studying, library staff taking a break, and visitors from outside the University having lunch and having engaged conversations.

With the pressure of her paper behind, Kathryn takes some time to catch up on a collaborative research project she is managing. She greets two graduate student assistants at the reception area and has a brief discussion with them in the lounge area while they wait for the previous occupants of a small enclosed meeting room to finish packing up their materials.

After the meeting, Kathryn steps out and sees that one of the project rooms is unoccupied. Kathryn asks the reception if she can reserve it for a 24-hour period, and is pleased to hear that it has not been reserved by anyone else. Having access to the room will allow her to review the entire layout of the grant proposal, written by her graduate student assistants, on the large work surface and be able to leave it for further review the next morning.

As she makes her way through the lobby to her car, Kathryn happens to pass a small, informal talk that catches her attention. Not in a particular rush to return home, Kathryn decides to stay and linger, catching the last 45 minutes of the talk.

LIBRARY STAFF MEMBER (NOT PUBLIC FACING)

Jeff is still debating the benefits and drawbacks of a few points he has in mind for today's presentation as he rides his bike to work at the Hunt Library. His latest project is the development of a digital browsing software to browse e-books. After a quick shower, Jeff grabs a cup off coffee in the lobby café, where he runs into some friends who also work and in the building. They have a brief chat and Jeff heads upstairs to the office, where he settles into his desk, checks his email, and listens to the four voicemails awaiting him on his phone.

Prior to the presentation, Jeff picks up his laptop and brings it along with him to the faculty commons, where he meets Don, a client faculty member who will be co-presenting with him on the progress of the software tool development. They share notes and make last-minute changes to the presentation.

Back at the office, Jeff goes to the collaborative space between the IT and Digital Library work areas for a weekly team meeting of software developers from the library, as well as from local partners at UNC and Duke. The meeting is brief, allowing Jeff to get his packed lunch in the staff lounge and eat on the terrace. The weather is nice out and although his thoughts are still on preparing for this afternoon's meeting, Jeff strikes up a conversation with an IEI staff member who is often on the terrace for lunch at the same time as Jeff.

At 3:30 Jeff boards the shuttle up to the DH Hill library with two of his other colleagues to present to the library administration the progress of their software development project. In its advanced stages, the project is well-received and the team gathers valuable and constructive feedback. After such positive comments, Jeff and his two colleagues decide to go for a celebratory drink in the town center next to the library and wraps up his day at 8.

LIBRARY STAFF MEMBER (PUBLIC FACING)

Katie is often one of the first people in the library staff office because she drives in from Durham early to beat the morning traffic. Already armed with a coffee, she drops off her bag at her desk and does a quick scan of her email before heading down to the central service point for the 9am-12pm shift. She spends much of the time answering reference questions, but also gets occasional requests for direction from visitors, as well as questions from students regarding the retrieval of books from the ARS.

The three-hour shift passes quickly and Katie walks across the Oval to get some lunch at a café. After lunch, Katie returns for a half-hour shift as a greeter, welcoming people who come into the Hunt Building and who may be in need of assistance. On this particular day, she approaches a pair of German tourists who subseqently ask her questions about the design of the building. Katie helps them acquire at the service desk two multilingual devices used for self-guided tours.

Back upstairs at the office, Katie prepares for an consultation appointment with a staff member from Red Hat, one of the library's Centennial Campus neighbors. She greets him at the library staff reception area and leads him to one of the small meeting rooms. Her laptop in hand, Katie is able to pull up reference information and have it projected onto the screen to collaboratively develop a list of research requirements.

The last hours of Katie's day are spent back at her desk. In between some administrative paperwork, Katie answers online queries from users connected via video chat. After helping a student with finding materials relevant for her engineering research project, Katie packs up and heads back to Durham for her 7pm yoga class.

GRADUATE ENGINEERING STUDENT

Jung Hoon, a graduate engineering student from South Korea, uses the library as his primary workplace. His routine consists of starting out his day with some individual work in the quiet reading room, which allows him enough work space and quiet to make the morning productive, while at the same time providing a more community-minded setting than what his own apartment provides.

As much as he enjoys the quiet reading room, Jung Hoon also likes graduate commons, but for more group-oriented work. He packs up his laptop and walks over to the graduate commons for an 11am meeting with his engineering classmates. He and his classmates have a reserved study room to work on a group project for their course and colloidal and nanoscale engineering. They work together for an hour but all remain in the room after they finish, with each team member working individually on his or her section of the presentation.

After a quick lunch downstairs in the lobby café, Jung Hoon comes back to the library to another group study room that he reserved for TA office hours. Three students come by with various questions, and Jung Hoon is able to help out by sketching concepts on the room's whiteboards, project assignment questions on the screen, performing searches on the web on various topics, and reviewing a web video of last week's lecture, pausing at various times to discuss key points.

A long day over, Jung Hoon decides to work the rest of the day from home. He cooks dinner and while he waits for the water to boil, he logs on to the library search engine, queuing several books to request from the ARS so that he can retrieve them from the central service point the next morning.

UNDERGRAD ENGINEERING STUDENT

Janelle is a freshman in the School of Engineering and often finds herself on Centennial Campus. After her morning history lecture, Janelle boards the campus shuttle to Centennial Campus, taking sips of tea from her thermos. Janelle drops in the library to get some work done before class. She was up until 2 am working on a problem set, so in a rush to get to her morning class, she decided to print her homework at the library. She leaves her bag in a small day locker and brings her notebook to her meeting with Jung Hoon, a TA for her introductory physics course. They discuss last week's lectures and resolve any outstanding questions that she had about some of the concepts presented.

Janelle walks up the Oval to her electricity and magnetism class in EB 2. After a lively discussion, the professor solicits questions that students may have about the group project they were assigned two weeks before. Remembering that her group is scheduled to meet after class, Janelle logs on quickly to the library website and books a group study room in the Learning Commons. Janelle and her group walk together back to the Hunt Library and pick up lunch from the café on their way up to the study room. Janelle makes a quick trip back to her locker to pick up her bag and to the central service point to check out a projector. Back at the room, her teammates are already at work on the whiteboard, sketching on the whiteboard some of the key concepts of their final report.

The group work session begins to lose some of its momentum, so Janelle and the rest of her team lock up the study room with a swipe of an ID card and take a break in the video gaming area of the Learning Commons. After a few rousing sessions, the team returns to the study room and works for a few more hours, splitting the tasks and working individually until the early evening. At that point, everyone packs up and parts ways, with Janelle heading back to Central Campus for her intramural softball game.

UNDERGRAD HISTORY MAJOR:

Kevin, who lives nearby on Varsity Drive, often comes to the Hunt Building since it is the closest library to home. Although he is a history major and spends most of his time on Central Campus, he usually comes in the evening after class, looking for quiet spaces to study. He prefers the library because it provides a more lively, social environment compared to his living room.

After a few hours of studying today in the quiet study room, he takes a break by going upstairs for a cup of tea at the Sky-Lounge, which tends to quiet down during the evening hours. Kevin lets his mind wander for a few minutes as he takes in the view from a lounge chair, sipping his tea, and motivates himself to head back downstairs. He has a planned meeting with a classmate, Greg, for a paper they are writing together for class. Tonight there are many group study rooms not being occupied, so they drop into one for a quick update on each other's progress.

Greg leaves to work on a problem set for another class and Kevin returns to the quiet study room for one more hour of reading. Tired and ready for bed, he packs up his bag and walks the short few blocks back home to his apartment.

GRAD ANTHROPOLOGY MAJOR

James is a graduate student in the Anthropology department who comes often to the Hunt Library because of the attractive facilities and its proximity to home. Today is like many days when he does not have class, so he comes to the Hunt Building to get some work done. He comes in at 11 am and after stopping at the lobby café, makes a beeline to the Graduate Commons, concerned that the proposal he is helping to write needs a bit more polishing. He initially sits down at one of the larger work tables but realizes that there is too much ambient noise, so he checks online to book a small focus booth, where he works for a few hours.

After lunch in the SkyLounge, James makes his way to the Chancellor's Spaces to meet with Kathryn, a faculty member who has an office this year in the Center for Advanced Human Inquiry and whom he, along with another classmate, is assisting to pursue a research grant. They meet with Kathryn in a small enclosed meeting room and at the end of the meeting, leave with her the packet of materials they prepared.

On his way out, James runs into a few undergraduate students in the anthropology course for which he is a TA. After fielding a few questions, he heads out the door, hops on his bike, and pedals the short ride home.

RED HAT SOFTWARE DEVELOPER (CENTENNIAL CAMPUS AFFILIATE)

Jennifer, a software developer at Red Hat, occasionally comes to the Hunt Building. After her lunch in the town center, she walks up the hill to the library. She stops by the library security desk to obtain library privileges, asking directions to the main service desk. She asks Katie, a librarian at the central service point, about gaining access privileges to electronic journal resources as a Centennial Campus partner for research purposes.

After a brief consultation with Katie, Jennifer walks through the lobby on her way out. A promotion on the main information displays in the lobby catches her eye, featuring a speaker whose book Jennifer had just finished and thought highly of. She takes note of the event's date and makes plans to return with colleagues to attend the talk.

TOURISTS

Robert and Ingrid walk around the perimeter of the Hunt Building, trying to get an understanding of the building and its relationship with the surrounding landscape. Robert and Ingrid are tourists from Germany on a road trip along the East Coast and are architecture buffs. They had learned about the Hunt Building from Architectural Review magazine and planned a stop in Raleigh to see it in person.

After leaving their car in the parking deck, the pair walk down the Oval towards the building. They take pictures and even make a short film recording to show their friends back in Germany. Robert and Ingrid ask a passing student for directions to the main entrance of the library and make their way to the main lobby. After passing through the main doors, they pause and take in the view of all the different activities and spaces adjacent to the lobby's atrium. Katie, a greeter, approaches them, asking if they need any assistance. They ask if there are any informational materials about the building, and Katie informs them that yes, there are. There is also a tour, but unfortunately it began an hour before. Katie invites them to come back tomorrow, but they inform her that they are just passing through town. As an alternative, Katie provides them with a listening device that allows them to take a self-guided tour of the building in German. Katie also points them toward some building highlights, including the Hunt Gallery and the SkyLounge.

After spending 20 minutes in the Hunt Gallery studying the interactive graphic displays, they head back through the lobby to the library security desk, where they leave IDs to obtain day passes to the library. As the elevator takes them up to the SkyLounge, they look at the library passing below them, rising above the buzz of the Learning Commons.

Up in the SkyLounge, Robert and Ingrid rest in lounge chairs, have a drink, take pictures and admire the view from the elevated vantage point. Looking at the surrounding landscape, they decide to walk down to Lake Raleigh for a walk along the shore. On their way back down, Robert and Ingrid catch a glimpse of the ARS in action, with its mechanical arm whooshing along the aisles as it retrieves books from their elevated trays. They meander their way through the Learning Commons and stop at the security desk to pick up their IDs. They walk down the hill through the town center and down to the dock and Lake Raleigh, taking in the natural surroundings.

CENTENNIAL CAMPUS RESIDENT

When retirement approached, Terrence decided that he and his wife no longer wanted to maintain a large home in the suburbs. As an alternative, they decided to rent a smaller place in Centennial Campus that put them in close proximity to a range of amenities and services within walking distance.
Terrence comes by the Hunt Building on occasion for some light reading in the popular collections area and to attend events. On this particular day, he comes through the lobby and inspects the information displays, which often promote various lectures and talks that are of interest to him as a retired engineer. He makes a stop at the security desk to pick up a library access pass and makes his way to the collections area.
Terrence parks in a lounge chair for an hour and a half, catching up on reading. He enjoys the bustle and activity of the library and considers auditing a class at NC State to become a more active member of the academic community. He walks over to an unoccupied computer terminal to examine the course schedule for the upcoming semester and takes note of several classes. With lunchtime approaching, Terrence makes his way to the lobby and walks home

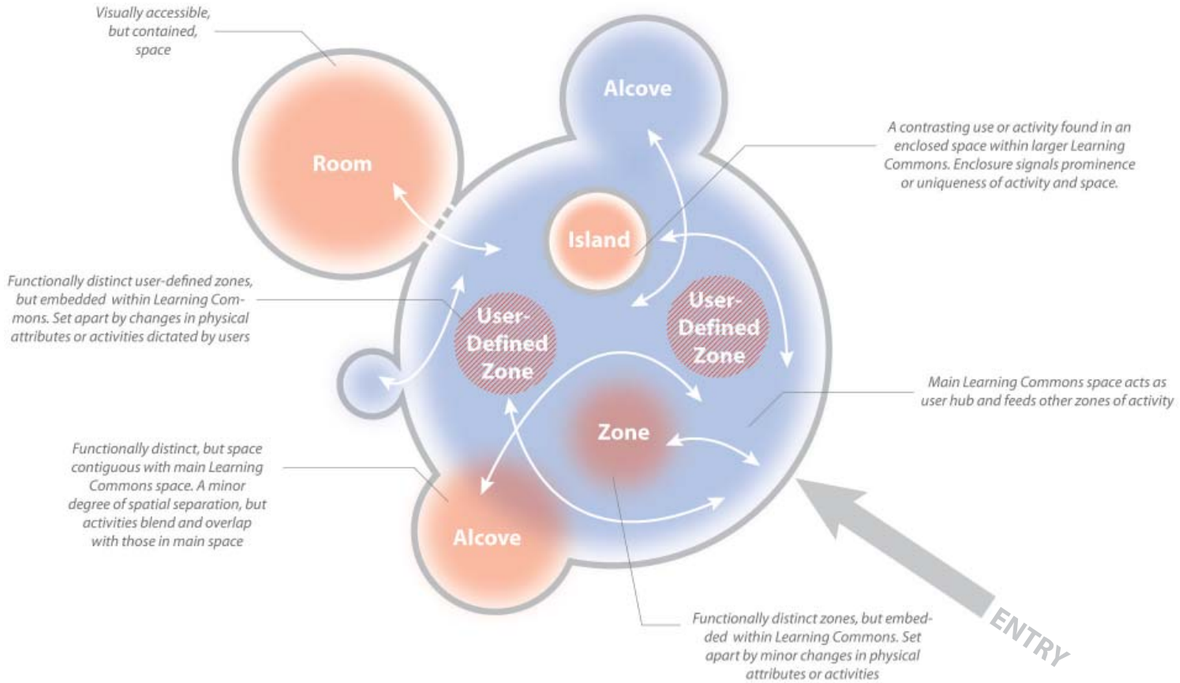
5 Programming

Space and Program Strategies

The programming and pre-design of the Hunt Library developed through a series of workshops structured around either specific user groups or mixing groups to address a common theme or topic. Out of these discussions, activities, and subsequent refinements, many of the programmatic strategies for the building emerged. These strategies are approaches to key issues facing the buildings and will inform the design as it unfolds. They include the following topics:

- Library User Spaces
- Exemplary learning space
- Collections
- Connective lobby
- Access and security
- Versatility
- Library service / support
- More effective space use
- Adjacencies

Taken together, the strategies emerging from the programming process and detailed in the succeeding pages begin to paint a picture of the Hunt Library and evidence the innovative thinking of workshop participants in addressing key challenges for the Library – now and in the future.



Organization of Library User Spaces

LIBRARY USER SPACE

The vision and strategies for user spaces within the Hunt Library were developed through workshops with the library staff and user groups. While there were varying conceptions of user space, there were a series of defining themes and concepts for user space which can inform the design and ensure that it can support users both in ways that we foresee as well as those that cannot. The user space within the Hunt Library should:

• be an inspiring place for exploration and discovery – of materials, services, and other users.

• be a place not only for information retrieval, but for creating content. As one participant put it, the library could function like a "Zen Junkyard" that blends traditional and new, tranquil and contemplative, and reserved an fun with a kind of happenstance feel that is not overly organized.

• enable collaboration among students and faculty as well as promote interdisciplinary work,

• allow users to "leave footprints" so that other users can see what their peers are doing and both be inspired by it and build upon it

• be seamlessly supported by library staff that are mobile and accessible as well as at fixed service points or with more specialized user spaces

• be a network of connected devices so that each users equipment can easily interface with the library's as well as that of other users.

To achieve this vision user space, two key strategies were discussed and developed in the workshops. First, the Hunt library must provide a spectrum of user spaces in terms of atmosphere, technology, access to collections, and services so that users have choices and can both situate themselves according to their needs as well as have some control over their environment to fine-tune it to their activities. This enables spaces to be defined as much by how people use it as by its character, technology, and support.

Secondly, the library should function as a hybrid of both general user commons as well as more specialized spaces with unique technology, collections, and/or expertise. With the specialized spaces, such as the Digital Media Lab, situated off the commons space, some of that activity can spill out into common space to create transitional zones and help both advertise these spaces and minimize the "switching costs" to users in moving from one area to another. In relating the smaller specialized to main commons, four strategies were developed:

• Rooms adjoining the commons, when enclosure is needed; instance, because of security, acoustics, or support criteria or for the clear identity of the space and function.

• Alcoves adjoining the commons that locate specific functions but prioritize connectivity and "spill-over" more than enclosure

• Zones within the commons with identifiable and differentiated functions

• Islands which are rooms within the large space that help organize that larger space but should not serve as obstructions in it.

Metaphors

5 Programming

Zurich Airport


Apple Store Mobile Checkout


Back Bay

During programming discussions for Hunt Library, a series of metaphors or comparisons emerged that groups felt conveyed aspirations for library user spaces. These included:

• “Good” airports that are easy to move through and promote cooperation

• Apple Stores (in comparison to Home Depots) with mobile, engage staff, and

• Layered street systems whose hierarchy provides a clear purpose and identity for each type of street, such as in Boston’s back bay.

A good airport was seen as a model for the Hunt Library in that good airports make it obvious where you need to go and if you do take a wrong turn, there are minimal penalties – it is easy to get back on track. And this is accomplished not with signage, but through the design of the space itself: proportion, views, transparency, organization/configuration, and atmosphere. Additionally, it was noted that while bad airports often inspire competition (borne out of frustration), good airports inspire cooperation, the kind of cooperation that is a critical part of the Hunt Library mission.

Apple stores were also discussed as capturing many qualities of the kind of user spaces to which the library aspired. The accessibility, mobility, and engagement of their staff their staff were key aspects. Additionally, the mobile checkout devices set an interesting precedent for library services: rather than a checkout counter in a fixed location, these web-enabled PDAs enable the checkout to be wherever the customer is. Last, the informal learning and support, enabled by their open theater / presentation spaces and “genius bar,” respectively, were also interesting aspects. The apple store was contrasted with Home Depot, which have a lot of staff but who are hard to find – though that these store do offer instruction on projects, tools, and techniques is admirable and aligned with the Library’s goals.

A Layered Street Grid was also discussed as a important aspect of the circulation within the library. Like the parallel main streets and secondary streets with connecting side streets in Boston’s Back Bay, the circulation with the Hunt Library should have a hierarchy that makes it easy to move through the building but also connects to quieter, smaller-scale places and provides multiple paths to the same destination, each with different character. By creating an identity for the different pathways, they can be correlated with the function and character of the spaces these paths adjoin and connect - and allow a “main street” to serve as a clear center of activity and promote interaction, collaboration, and informal learning.

Video Conference Room

NC State SCALE-UP

Stanford University

EXEMPLARY LEARNING SPACE

A key strategy for the Hunt Library is to provide exemplary learning spaces that serve the campus and the University while also inspiring the incorporation of such spaces and techniques elsewhere on campus. The strategies for exemplary learning spaces proposed for the Hunt Library include:

• Offering shared facilities to bring campus constituents together

• Incorporating new and innovative settings for more active, technology-enabled learning

• Creating environments that promote an openness to creating and sharing ideas

• Providing a spectrum of technology in collaborative settings based on adoption curves and replacement schedules

Shared Facilities

The Library can offer shared facilities, such as visualization studios, that can be used by multiple departments. With the library providing the kinds of spaces that are often beyond what an individual department can maintain or has use for, they can get higher utilization and facilitate interdisciplinary work.

New and Innovative Settings

Learning spaces can also incorporate new settings that support more active, and technology enabled learning; for example by using learning studios that build on the history of innovation in learning space at NC State, for instance in Professor Robert Beichner's SCALE-UP program (http://www.ncsu.edu/PER/scaleup.html). These 'prototype' spaces allow the library and faculty to experiment with more active ways of learning and can be used pilot such spaces prior to their wide distribution on campus.

Open Environments for Creation and Sharing

Another spaces that grew out of workshop discussions was the concept of a space that could promote an open attitude to creating and sharing content. In this "Open Classroom" or "Fishbowl Classroom," participants would agree to work in a fishbowl and share their work openly in exchange for top-notch technology, expert support/facilitation, and a prime location.

Serendipitous learning and discovery are crucial within the Hunt Library. This can be supposed by providing spaces that trade-off some enclosure for exposure along a major circulation route in order for people walking by to be drawn into a lecture or event. Such a "three-sided classroom", as one workshop participant put it, could be modeled after spaces like Open Theaters in Apple stores or the Tech Talk spaces at Google.

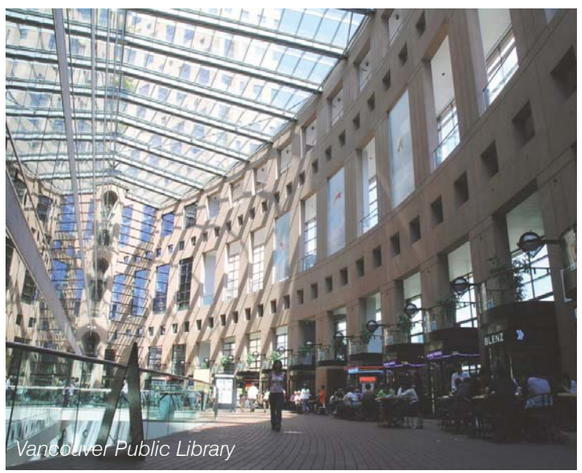
A Spectrum of Technology

Lastly, the library can model the kind of technology and support to which the rest of the campus – and the world – aspire. One aspect of this is the thoughtful configuration of group study rooms to provide a spectrum of technology – from the basic whiteboard to smartboards and HD projections – so that the distribution of technology among a group of say 10 rooms is aligned to typical adoption curves and therefore replacement and upgrade cycles. If configured this way, a "group work corridor" would enable what is advanced technology today to shift to adjacent rooms as it is considered basic technology tomorrow.

5 Programming


New York University


Santa Clara University


Vancouver Public Library

COLLECTIONS

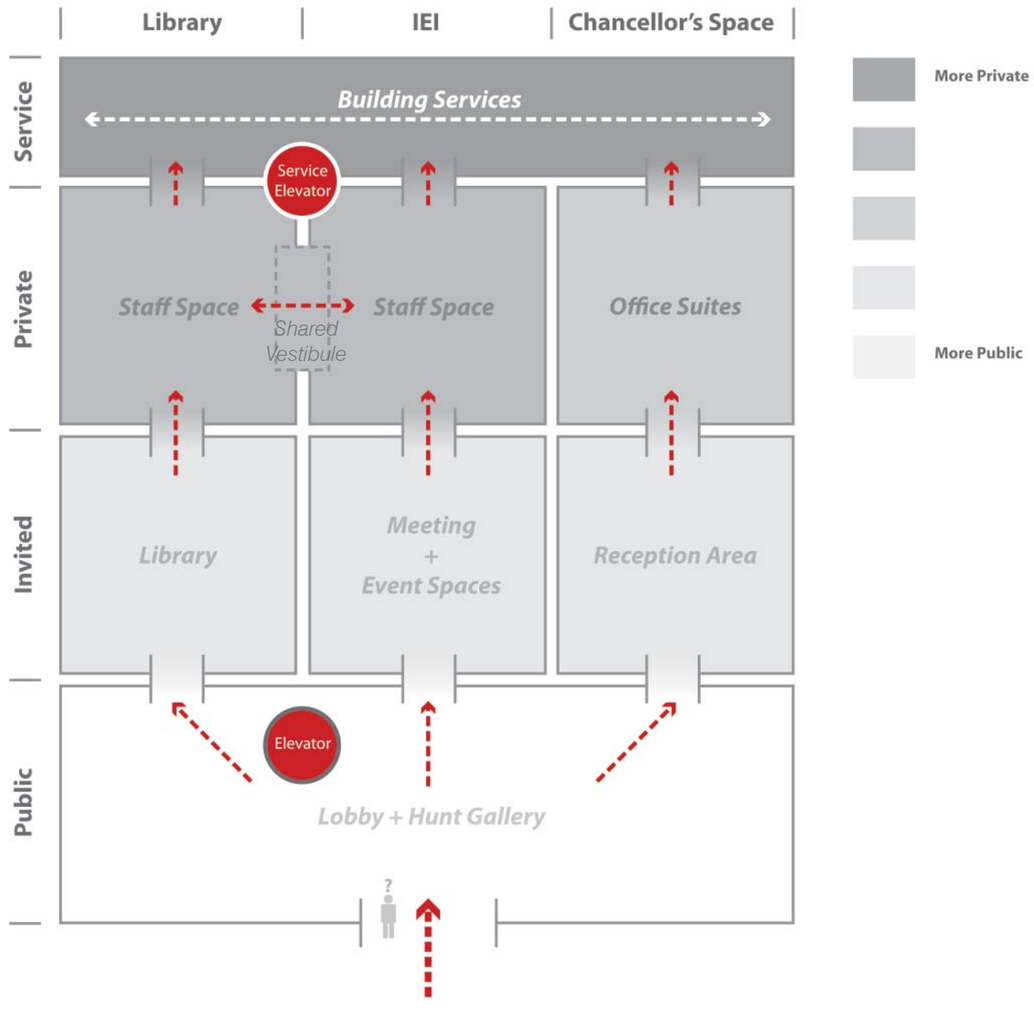
The collections strategy for the Hunt Library is to have approximately 47,500 volumes on open, browseable shelving that are complemented by 2 million volumes in an automated retrieval system out of which patrons can request books and promptly pick them up within minutes. This coupling of complementary collection strategies will enable the library to meet its needs for securely housing materials while enabling high-use materials to be the most accessible and browseable.

The make up of browseable collections will be the latest five years and high circulation books in relevant subject areas such as engineering, textiles, physical sciences, math and statistics, and botany. It will also include regularly consulted bound journals/magazines that are not available online as well as reference volumes. Last, it will include a popular reading section of books as well as a selection of current journals, magazines, and newspapers.

The Automated retrieval system will complement the browseable collections by providing efficient, high-density collections of 2 million volumes that can be retrieved within minutes. By compacting the collections to roughly 7 times the density of conventional shelving, the library will be able to not only store the 870,000 volumes originally anticipated but also provide additional shelving for growth and working capacity. This additional shelving will free up the top floor of D.H.Hill library for user space that can capitalize on the views as well as alleviate the need for an operational cost of renting shelving at Duke's facility. Collections storage costs the library approximately $300,000 per annum, and the Duke contract is due to expire shortly after the Hunt Library is open.

CONNECTIVE LOBBY

Multiple program and groups will be housed within the building, including the Library, the Chancellor's spaces, and the Institute for Emerging Issues. So, the building lobby plays a key role in providing access to each of these groups and their visitors as well as to facilities that are shared across all groups, such as large meeting rooms, a large auditorium, and support services like the first aid room, mothers' room, and showers. Beyond providing this access, it must also set the tone for the building with a lively and welcoming atmosphere – from the café to the informal reception areas to the prefunction spaces. The lobby must make the building's functions and organization clear so that people can move through it efficiently while at the same time accommodating short-term gathering and working of about 30minutes. Fulfilling these somewhat conflicting goals while also functioning as a connective hub will be a significant design challenge, one that will be critical to the success of the Hunt Library.



Layers of Access and Security

5 Programming

ACCESS AND SECURITY

Access and security are important aspects of the Hunt Library, particularly as the library will be open 24x7, the overall building will have multiple occupant groups with different needs and operating hours, and there will be significant investment in space and technology to be secured within the building. These key strategies for meeting these needs are to:

• provide layers of access

• include separate, dedicated vertical circulation for front-of-house use by the public and back-of-house use by staffs and service personnel.

• plan for a shared elevator vestibule between Library and IEI spaces to enable shared use of a single bank of service elevators

• create a systems of "guest passes" or card key access to make it a seamless process for IEI staff, Chancellor's spaces occupants, and both their visitors to access the library seamlessly – for instance, to gain entry to the Skylounge.

• Have a building wide online booking systems for shared spaces that builds in priority for certain spaces by certain groups.

Layered Access

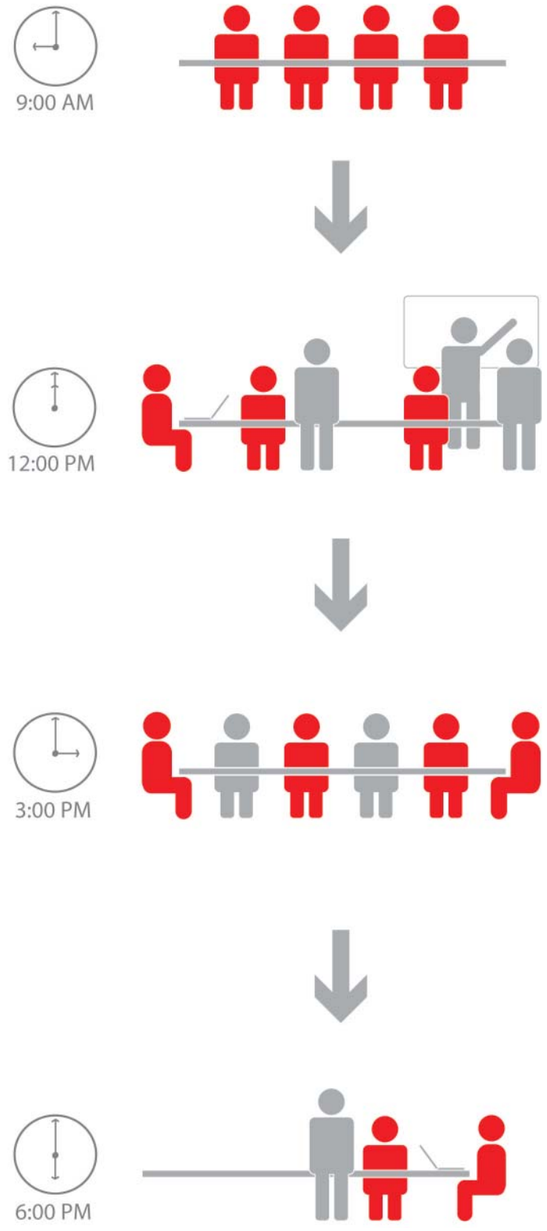
The access within the building should be considered in 3 layers of access:

1. common spaces that is public and open to all

2. "front of house" spaces that are specific to the library, the chancellor's spaces, and the IEI which can be accessed by the public but are geared toward these separate user groups. Within the library, it will be possible for library users to enter the library staff space, by appointment, and so that needs to be considered.

3."back of house" spaces that are specific to the library, the chancellor's spaces, and the IEI which can only be access with the respective staffs or occupants of each.

Configuring the building with these layers will enable the occupants to move freely to the access that are designated public while allowing the staff and building services personnel to ensure the buildings proper functioning and protect the investments in space and technology within the building.



Effective Use of Space Over Time

MORE EFFECTIVE SPACE USE

The vision of Hunt Library is of a facility that brings people together, promoting interaction and collaboration. One important way to accomplish this is by creating shared facilities that can be used by multiple user groups, and this also achieves another goal: using the spaces in the most effective ways possible.

Three principal strategies for achieving these goals were identified during the programming process. First, the building design must enable the same space to be used by multiple-groups over the course of the day and facilitate this with a common online space booking system that can give priority on certain spaces to specific user groups.

Second, in locating and assigning meeting spaces, the planning must acknowledge that smaller meetings tend to be spontaneous and larger ones tend to be more scheduled. Accordingly, smaller meetings spaces should primarily be assigned to specific groups so that they are available on a whim while larger rooms which are harder to fill can be used by all and thus achieve a higher utilization.

Third, shared spaces need to designated as either student accessible or not so that students can take over spaces in off-hours (e.g.: seminar rooms) but other rooms for which this is not appropriate can be kept separate, ensuring their maintenance and functionality.

VERSATILITY

The Library is undergoing tremendous change. The proliferation of electronic media, cultural and pedagogical shifts, and an unknown future have created opportunities for libraries to rethink their roles and priorities. As they reposition themselves to best support learning, research, and interaction, they must still perform the core functions of organizing, housing, preserving, and facilitating access to information resources. Accordingly, the planning of the Hunt Library identified a series of strategies to embed as much versatility as possible. For us, versatility is the ability to perform equally-well in multiple situations whereas flexibility implies that the facilities, technology, and people either “stretch” to accommodate multiple functions or that such functions are not fully supported.

During the programming process, we identified four principal strategies for versatility within the library - and the building in general.

First, as the design develops, the building should be thought of in “zones” so that portions of the building could be closed off - for an evening or a month. This would enable consolidating users during late/overnight hours for security reasons, and it could also be a strategy for reducing building energy use, if for instance, a portion of user space could be closed over the summer months (provided climate-control for collections and finishes are considered).

Second, the library must include the technology infrastructure that will support a mobile user base: wireless and cellular network coverage everywhere and power to every user seat (within a maximum 5 foot radius, as a goal). To accomplish this flexible power distribution, either a raised floor or a standard grid of floor boxes should be considered.

Thirdly, room sizes and proportions need to be developed with a modular approach to enable later combination (demolishing demising walls) or conversion to other functions, and these modules should be coordinated with the building’s structural, ceiling, and glazing grids.

Lastly, as reflected in the space program, the Hunt Library needs to contain both specialized and multi-purpose spaces to ensure that needs are fully met and to avoid the temptation to rely too heavily on multi-functional spaces to support different functional needs. The middle school “cafetorium” is a cautionary tale as it functions well neither as a cafeteria nor auditorium.

5 Programming

	Greeter Station	Security/Access Privileges Desk	Primary Service Point	Mobile Staff	Other Location/ Service Point	Virtual/Remote Support
Get Visitor's Pass		●				
Pay fines			●			
Claim a lost-and-found item			●			
Access Questions (e.g.: What is my PIN?			●			
Interlibrary Loan pick-up			●			
Meet a class/group for a library tour	●					
Assistance with University-related questions	●	●	●			●
Question about search query (known-item searching			●	●		●
General Research Consultation - how to search			●	●		●
Get consultation help with research - discipline specific			●	●		●
Get consultation help with research - format specific			●	●		●
Information Literacy Assistance			●	●		●
Wayfinding	●	●	●			●
Pick up a paged item from ARS			●			
Check out book			●			
Check out/return reserved item			●			
Get help finding a volume in the open shelves			●	●		●
Assistance with resources - generic applications			●	●	Technology Hub	●
Assistance with resources - advanced applications/GIS			●	●	Technology Hub	●
Assistance with hardware - own device					Technology Hub	
Assistance with hardware - library's device			●			
Assistance with printing			●	●		●
Check out devices, batteries, gaming equipment, etc.			●	●	Vending Area	
Device troubleshooting/repair					Technology Hub	
Assistance with use of sandbox or visualization space					Technology Hub	
Questions about room reservations	●	●	●	●		●
Assistance with technology installed in rooms			●	●	Technology Hub	●
Getting a cup of coffee					Cafe	
Getting a snack					Cafe	

Library Service Matrix

An important aspect of planning the Library is understanding how users interact with Library services. Users can interact with the Library in numerous ways, ranging from quick online chats with reference staff to more extended face-to-face conversations. These interactions are also evolving over time as the role of the library re-orients itself to providing a variety of user spaces and services.

In order to understand the distribution of library service provision, then, a survey was conducted, asking library administration how they envisioned where users would interact with various library services for a series of common activities. The results are shown in the table to the left.

The results of this survey will inform the design of the Library's service points, ensuring that the physical configuration of the Library will correspond to and complement the processes by which services are provided and delivered.

LIBRARY SERVICE / SUPPORT

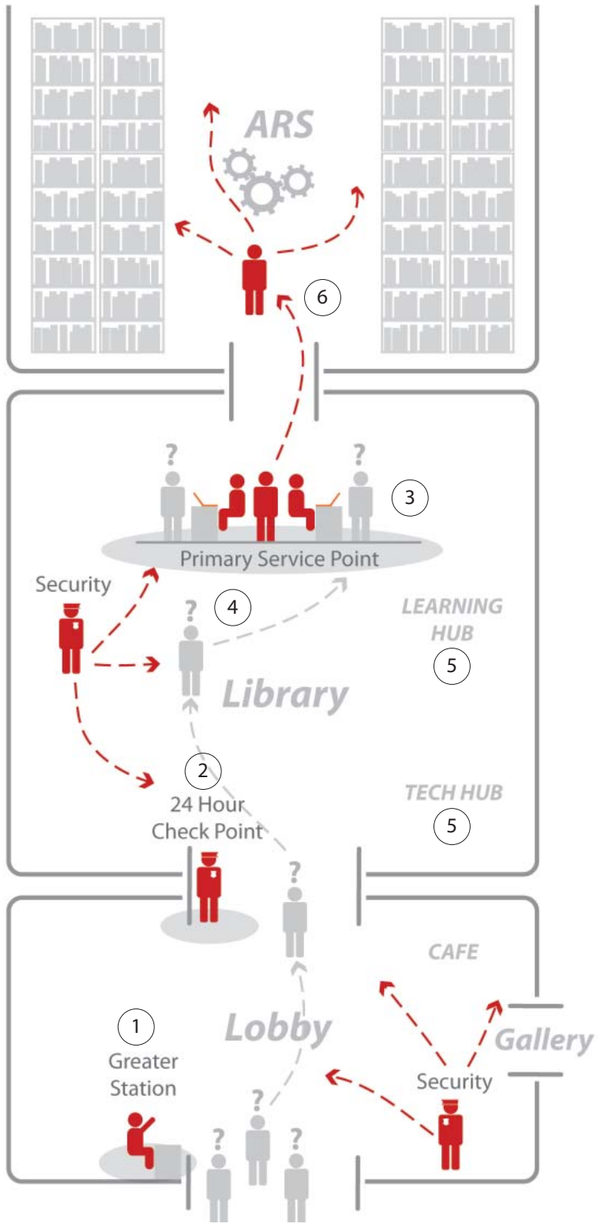
The strategies employed to provide services to users will shape the character and use of the library, and these services are influenced by changing staff roles, new user demands, and the design of the library itself. The work of librarians continues to shift from print-oriented processing to management of digital resources, offering knowledge navigation to users, combining subject-specific as well as technological expertise, and developing digital tools and resources to support research and scholarship. This means the library staff will need space that enables them to work together more effectively, to be more accessible to serve users better, and to be resilient in the face of the increasing challenges of new technologies and systems. Accordingly, the services within Hunt Library are driving by several key concepts:

- A co-located staff so that all groups can work together in an efficient use of space that effectively meets their needs and expresses their culture

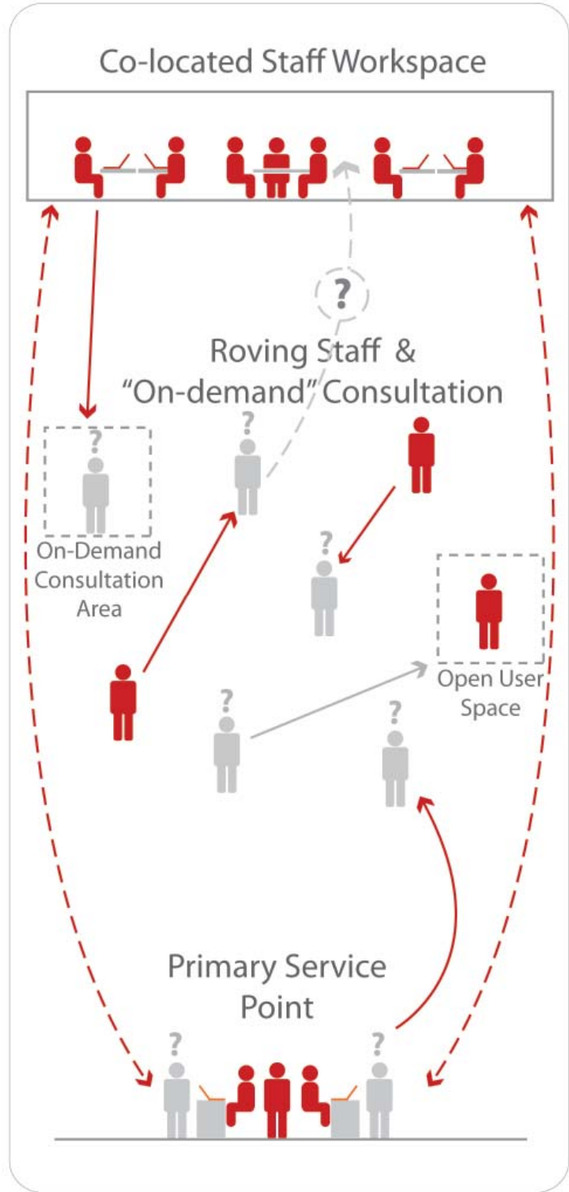
- An engaged, accessible staff that is mobile in order to provide services and support users where they are, and

- A central service point that is adjacent to the ARS and providing integrated services at one location so that users do not have to go to different places to get different kinds of services.

Locating all the library staff together will foster collaboration within and across library units and enable more effective work. Beyond this co-location, the specific functional relationships among the units are also an important consideration and they are indicated to the left.. However, this will mean that in addition to services offered at the central service point, library staff will also need to be more mobile and utilize touch-down spaces within the user space or visibly situate themselves within user space (such as at a large table or within a prominent group study room). This will allow users to find library staff at an identifiable place but also for librarians to go to users who have questions, once they've been summoned – digitally or physically – as shown on the next page.



Library Service Points



Library Service Model

5 Programming

Though there is to be a single, central service point, there are six principal ways in which library services and expertise will be delivered. Refer to the chart on the previous page for a depiction of which services are available where. These include a:

1. Greeter station in the building lobby, staffed by all library personnel in 30minute cycles

2. Security desk at the Library entry that will monitor the door, secure the physical collections and technology within the library, and grant and evaluate access privileges for library use.

3. Central Service Point providing integrated services such as reference, circulation, technical support, and device check-out. This will be adjacent to the ARS with a back-of-house connection to it and will also provide shared staff workstations and device storage.

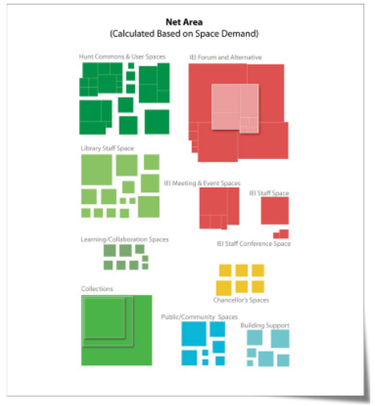
4. Mobile Librarians, situated within designed staff touch-down areas on-demand as well as prominently within user spaces

5. Associated with specialized user spaces, such as the digital media lab or innovative learning spaces.

6. Virtual support enabled by technologies such as instant messaging, email, and videochat, with new methods surely to come.

By employing this combination of strategies, the library staff can support its users in the ways they work now, but also in ways that cannot be foreseen.

Graphic Program Elements



Initial Adjacency Exercise

Refined Adjacencies as Building Section

ADJACENCIES

The program for the Hunt Library defines the spaces quantitatively, qualitatively, and in terms of the relationships between functions and the context. An essential component of these relationships are functional adjacencies that are depicted in the diagrams below and listed with each key program type. These adjacencies were developed from user input during programming workshops and then were worked out collaboratively among the design team using the graphic program in an iterative process with feedback from user groups, as shown in the interim steps below. This culminated in an adjacency diagram that that indicates functional relationships in plan as well as suggesting them floor by floor (or “degree of separation” as well) in a hybrid plan/section format. As part of the process, the key assumptions and principles for adjacencies were that:

- Similar functions should be stacked floor to floor so they are in consistent locations and are thus easy to find and use as landmarks. These include: group study rooms, copy/print areas, bathrooms, or other repeated library spaces/functions

- There is split level access in that the public can mainly enter the building at the level of the oval and the service access to the loading dock and associated spaces can be accessed at the current parking level, one floor below.

- Dedicated vertical circulation systems will be needed for the public within the library as well as service circulation for the library and IEI. By locating the Chancellor’s spaces off the building lobby and the Sky Lounge within the Library, additional circulation outside the library collections envelope can be avoided.

The key programmatic relationships indicated on the adjacency diagram are:

- The Library staff should be co-located with all space together rather than distributed across floors

- The shared building lobby will be connective in nature, linking to the auditorium, Hunt Gallery, public meeting spaces, chancellor’s space, and Library commons

- Within the Library there are functional clusters around technology (Digital media, Technolog Sandbox, and Visualization Studios) and Learning Spaces (Learning Studios, Seminar Room, Training Room, Fishbowl classroom)

- The Library user space will be organized to transition from more lively, shared commons to more quiet, individually assigned spaces like faculty commons, grad commons, and quiet reading room, which form clusters by function / atmosphere

- The distributed quiet seating should not be located near more dedicated quiet user spaces so as to complement more lively ones

- A Sky Lounge, open to all, will serve as a destination program within the library, drawing people vertically through the building

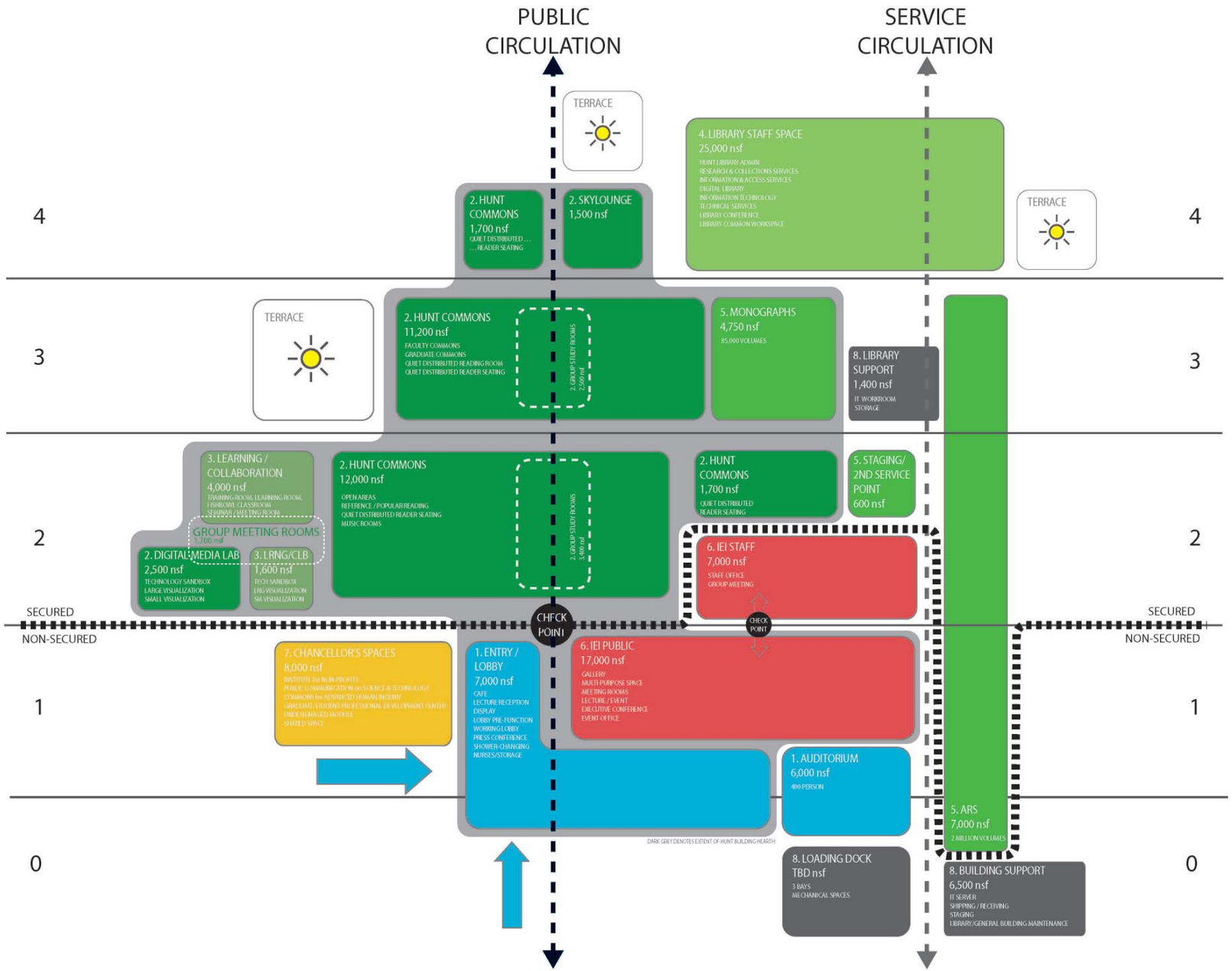
- Though the Sky Lounge roof terrace and staff terrace should be associated with those spaces, respectively, the other programmable outdoor spaces can be located as the design evolves to provide the atmosphere, connectivity, and functionality that will leverage and complement the spaces around them

Program Adjacency Diagram

This diagram, as shown in its initial sketch form on the previous page suggests a possible floor by floor organization. While the building can be thought of as library and non-library because of the need to protect library collections and equipment, all building tenants share building services and make use of non-library functions.

The assumptions illustrated in the diagram will serve as a road map and will be tested in various ways during Schematic Design.

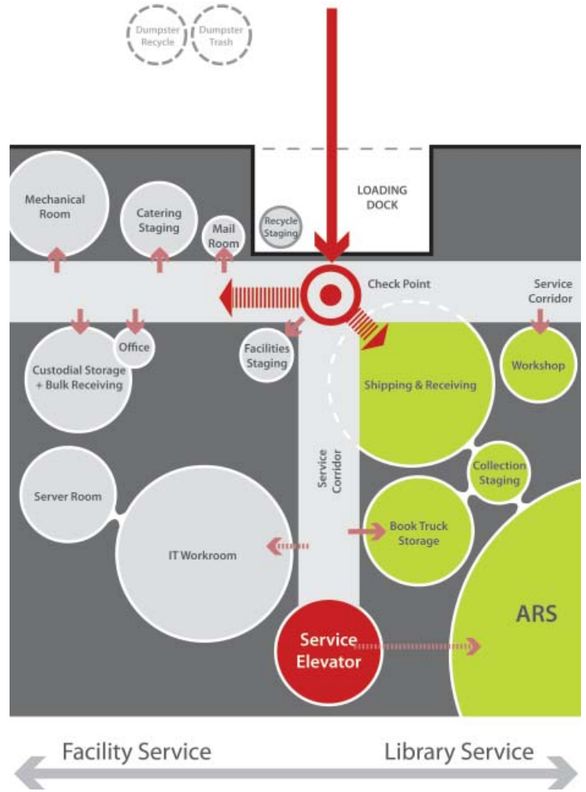
The diagram below indicates the adjacencies of the service-related program components for both the library and for the general building.



PROGRAM ADJACENCY DIAGRAM

NOTE:
NSF OF THE GRAPHIC ADJACENCY DIAGRAM IS APPROXIMATE AND EXCLUDES MUCH OF THE BoH PROGRAM BLOCKS [e.g. CUSTODIAL CLOSETS, STORAGE, RECYCLING, ETC. . . .]

1. PUBLIC / COMMUNITY
2. HUNT COMMONS & USER SPACES
3. LEARNING / COLLABORATION
4. LIBRARY STAFF
5. COLLECTIONS
6. INSTITUTE for EMERGING ISSUES
7. CHANCELLOR'S SPACES
8. BUILDING SUPPORT



Building Service Concept

Program Issues for Further Study

The programming and pre-design study for the Hunt Library defined its vision, functions, and key strategies. However, as the design progresses, there are several programmatic issues that need further investigation and development so that the programmatic concepts and strategies are understood in commensurate detail with the design as it evolves. The program-related issues for further investigation and development include:

- Workplace strategies for the Library and IEI staff spaces. After using the NC State standards to establish the overall area allocation, the right balance of individual and collaborative spaces should be worked out with each group and key strategies developed as to distribution of functions, incorporating new and innovative settings, creating zoning and neighborhoods, addressing issues of growth, flexibility, and working culture

- Defining the detailed mix and distribution of Library user seating (informed by observational studies and analysis / projection of populations and usage), with the goal of maximizing seating opportunities to exceed the current program, considered a minimum target

- Learning Space development, including identifying teaching and learning activities to be supported within the classrooms planned for the Hunt Library, creating layouts/ configurations based pedagogical models, technology strategies, flexibility concepts, and service/ support ideas, in consultation with instructors and support personnel on campus

- Detailed adjacencies within and between spaces based on user activities, work process, material flows, and unit/ departmental relationships

- Further library planning for service and support concepts, user spaces, and collections, including security envelope, ARS configuration, and circulation / distribution strategies

- Ongoing refinement of and coordination of program strategies with the surrounding campus as it develops, utilizing a learning landscape perspective so that learning, discovery, and interaction within the library can be understood within the campus context.

- Food service relationships between points-of-service, deliveries, and staging areas, to be developed in consultation with campus dinning representatives and potential vendors. The market and focus for food services locations within the building (Sky Lounge vs. Lobby Café) need to be understood as well as the relationship between the catering kitchen, catering staging, and service access / elevators

- Security and Zoning strategies, including which spaces are within the library ‘envelope,’ whom has access to what, relationship between public to private circulation, and how the different “zones” of the building are informed by their patterns of use.; for instance 24x7 versus 9 to 5. Specific issues such as the location and ‘ownership’ of the SkyLounge will need to be resolved as part of this work.

6 The Centennial Campus Master Plan

a. Overview

6 Centennial Master Plan

NCSU - Centennial Campus Masterplan

The Centennial Campus at NC State is a new addition to the campus framework. It is located about 1 mile south of the historical campus core, now known as North Campus. The Centennial Campus is separated from the main campus areas by a residential and commercial belt bordering Western Boulevard, an expansive multi-lane thoroughfare running east to west that is heavily used by commuters.

It is considered too far and too awkward to walk between the main campus and Centennial Campus but the two areas are easily accessible by automobile, bus or bicycle. Bus transportation between the campuses is somewhat limited today but is expected to increase as more facilities are completed at Centennial. In the distant future it was also considered possible to link Centennial Campus with other campus areas by an overhead monorail-like system.

The Centennial Campus is currently under development and is situated on 1,334 acres in southeastern Raleigh. The campus is often referred to as a “technopolis” and consists of residential housing, research and development centers, as well as recreational amenities; a golf course and an Alumni Center. Its atmosphere is more research park than collegiate. The Master Plan combines an advanced technological community for the university with government and industrial partner institutions.

The development for Centennial Campus began after a land allocation in 1984 allowed the NC State main campus to expand. When acquired the area was characterized by naturally rolling and forested hills, some few ponds and creek systems, a large lake, a small middle school, some scattered farmland, and an abandoned hospital grounds.

The natural landscape of the Centennial Campus area is primarily characterized by a high ridge running roughly north to south that falls off gently toward the center of the plot where Lake Raleigh is situated. The lake is a water collection point for a number of smaller creeks within the area. Water from the lake is controlled by a dam on its eastern end.

Campus Records and NCSU Records note that: “Between 1984 and 1985 Governor James B. Hunt, Jr. and Governor James G. Martin transferred over 800 acres of state land to North Carolina State University. The university settled on the idea of creating Centennial Campus, a “technopolis” where university units, governmental entities, and private industry could share facilities and collaborate on projects. Since beginning its operation, the campus has attracted a variety of prominent tenants, including ABB, Red Hat, Inc., and the National Weather Service and it has become home to the College of Textiles and the College of Engineering.”

The original Master Plan for the area was carried out by the former Campus Architect Abie Harris in collaboration with a number of designers including the internationally acclaimed Canadian architect Arthur Erickson.

The following are excerpts from an interview with Abie Harris that is currently in the collection at NSCU.

Q: Can you tell me anything about the origins of Centennial Campus? Anything you know about the major players or the people involved?

Harris: When Bruce Polten was chancellor in the early '80s—he asked me, I was the University Architect, to do a study of the space potential of the existing campus. I did a study and that study revealed something that most people had realized: we were very crowded; we didn't have many opportunities for growth on the existing North Campus. With that understanding, and intuitively, I guess Bruce Polten knew all along that it was a very crowded campus. Coincidentally, the Dix property became available. I know that the city of Raleigh had done some studies earlier showing the potential of getting different scenarios of how that property may be used. That is kind of… It is the same thing that is going on now with the remainder of the Dix property, but that was the land that we ultimately inherited. Bruce Polten was having meetings downtown with the governor. I think it was Jim Graham and others who had a stake in that land. I was back making sketches of how we might use that land. I was making very quick, master plan scenarios of showing how the university could expand into that. One of the recommendations that came out of that 1983 study that Bruce Polten asked for was a recommendation to build a research campus, which a lot of campuses across the country were doing at that time. And the rest is history, as we say. But the land in '84 and '85 was appropriated to the university. We immediately started planning studies. Concurrently there was a development team put in place—the Carly Capler Wood. They brought land design with them. Brad Davis is a landscape architect and he certainly was a principal player. They also brought in an early design consultant, Arthur Erickson from Canada. And Ryner Fasler was the principal participant in that process. I think that he certainly gave a lot of direction to the master plan. About that time Bruce Polten made a very… May I call it courageous or strong decision to build no more new footage on the main campus and we already several projects underway. One of those was the College of Textiles. He just simply said that that would be moved to the Centennial Campus. It was that kind of bold decision that I think really got Centennial Campus underway. So we immediately started planning, that is, the architects and my staff and others that the campus started planning for moving the College of Textiles to Centennial Campus. Concurrently, the master plan was being developed and it really kind of grew from that first initiative.

Q: So once the preliminary work had been done in 1983—the studies, and the land had been acquired and you began to develop the master plan. What other kinds of things were a part of your job as the University Architect in those early stages once Centennial got rolling?

Harris: I think, as University Architect, I was in somewhat of a management role. That included advising the University Trustees Buildings and Property Committee about building locations. We managed the architect selection process. I think one of the successes of Centennial Campus and the original campus as well is that I think the university has made an effort, and our trustees have responded in selecting the very best architects we could. I think that has been a hallmark of Centennial Campus. There was a very high design standard with the architects and the landscape architects.

I think as the master plan evolved, it was based on several principles: one principle which we had adopted for the main campus was that the campus would really be broken into smaller clusters, or as we call it in the master plan, the academic neighborhood or the campus neighborhood concept.

That was an idea of taking a smaller unit of campus buildings that is based on the two minute walking radius. It is based on having a collection of activities that supported the vitality and supported communication between the participants and buildings on campus.

We built this around open spaces. That was sort of the principal organizing concept of Centennial Campus as it was on the original campus. And I think another major principle of the master plan was that it was based on the natural systems: the streams, the valleys, the contours. This became kind of a network of open spaces through the streams.

The transportation network was overlaid over that and I think this really has served the campus well in terms of preserving open space to preserve the natural characteristics of the site.

Another important principle of the master plan was that it was to be a very urban environment. The reason for that was that we felt that the underlying goal of Centennial Campus was to create a place for communication.

I think communication depends so much on encounter—not only just organized encounter in classrooms and labs, but those spontaneous encounters that take place out in the open spaces which is a principle of the Centennial Campus. And those encounters depend on having activities that support people getting together: coffee shops, food service, and a mixture of activities. So these were principles that I think were very important in the foundation of the Centennial Campus planning.

Q: I just want to make sure that I understand. The principles that support the master plan are different from the design guidelines or standards?

Harris: Yes.

Q: Could you talk about your role in developing the design standards and guidelines?

Harris: Yes. I think we developed design guidelines to make sure those principles were realized. Those design guidelines have to do with the amount of building, the density of the campus, how much parking there should be, the creation of open spaces, the character of the buildings, the scale of the courtyards and these kinds of things. But the design guidelines were exactly that. They made sure that the objectives of Centennial Campus, the concepts, were reinforced.

Q: Okay. This is something that is just probably an opinion, but I'm curious and I'm asking everyone about their ideas about the Research Triangle Park versus Centennial Campus because I think people are confused often times. Outsiders may think that Centennial Campus is a mini-RTP or competing with RTP. What distinguishes them from one another?

Harris: There are several distinguishing characteristics. One is sort of density. It is obvious that when you drive through Research Triangle Park that I think by their design standards, they—each individual project or each individual entity there can only occupy 15% of their land. With Centennial Campus it is just the opposite. I mean, ours, as I said, is a very urban, compact campus. It is done that way, one, to save land, two to make sure there was interaction and communication taking place there. So I think there is a fundamental difference in Centennial Campus and any campus in Research Triangle Park. Research Triangle Park is definitely suburban. It is built with enormous open spaces and a campus or certainly Centennial Campus is just the opposite. It is very compact for those reasons of land conservation and to make sure that we have the encounter that provided the communication among the participants there. I think that the Research Triangle Park, there is a lot of work that one researcher doesn't necessarily want another researcher from another company to know about. I think that the attitude of Centennial Campus in most cases is one of collaboration with the university. Maybe not with all the other corporate partners there but I think that is a fundamental difference.

Q: What do you think some of the strengths of Centennial Campus are?

Harris: I think now it is certainly emerging as a model throughout the world of a new kind of research park. This is one that in your interviews you'll hear a lot about the uniqueness of the collaboration of academics and corporate government partners. I think this is unique brining academic potion is. I think that has been—really a great, unique success for North Carolina State University. I think it has, as I go through there now, as I drive through there—I don't walk through there too much. I think that addresses one of the weaknesses of it, but certainly it has been built, I think, to a high design standard. I think there is preservation of the open spaces. I think the respect for the natural environment is one that we've worked hard—and I think that, in most part, has been successful with storm water management. Protecting the wildlife corridors, I think that has been successful. Architecturally, I think that there are some very good buildings there. I think that I'm personally very proud of the spaces in between the buildings. I think a good job has been done there in creating courtyards to foster the urban environment, to foster the potential for communication. I think these are the strengths that I see there now. The weaknesses…

Q: I said I was going to ask you that. You just mentioned one about pedestrians.

Harris: I think the weaknesses are that we have not realized our vision of mixed use. I mean, the notion of mixed use, which is one of the basic concepts that I hope I mentioned earlier in the conceptual part… But I think that it has been difficult to get housing there. I think there was, from the beginning, that there was a notion that we not have students living there, but there would be more researchers and other people who would be living there. I think there is a certain downside to having a student enclave on Centennial Campus. I think that has been one of the major disappointments. We haven't been able to completely realize the notion of mixed use. Originally the notion was that each of these clusters that I described—there was to be a portion of housing in those. That apparently is very difficult to achieve now. Housing is being set off in a kind of a separate enclave. I think that is one of the weaknesses. I think the other weakness is that it hasn't really yet developed the collegial atmosphere that I think it will. It just needs more time, more spontaneous or haphazard development—maybe more graffiti, but those things that make it a little less sanitized. It needs to just be a little more organic. It is very planned and overwhelming in that regard now.

A phenomenon—I don't know if it is a weakness or a strength is that there is an enormous amount of parking. That is a major difference between Centennial Campus and any other campus. There we have almost a square foot for parking for every square foot of building area. So if you've got a building this big for research then you are going to have a building that big for parking. That leads to some enormous design challenges, but I think they've been well handled. I think that this phenomenon, whether it is a weakness or a strength, one would have to say. I think that the streets there now were intended to have cars parked on them and they do not. So it makes it still look a little suburban. It is not as intense and urban as I would like to see it or as I think as we imagined it early on.

Q: You mentioned Bruce Polten before hand and how

he had *made some courageous moves and been sort of aggressive in the development of Centennial Campus. I know that the university faced some opposition about Centennial being built. I was wondering of your office ever encountered anything or you did in giving presentations? People on the university faculty, students, people in neighborhoods or the press. Were there any experiences you had with people really being very against Centennial?*

Harris: I don't remember people being against it. Before Claude McKinney came on, I was sort of the person making presentations to the faculty and to other people. I think that we combed the campus and the faculty and everyone there to generate how people would use the campus I think there was great enthusiasm and optimism about Centennial Campus and the opportunities that it had. I think that… I don't encounter any negative criticism at all from anyone. I know that within the campus, I think as we started developing it, people were critical of maybe some of the design directions, but I think we expected that. That was business as usual. I don't remember any significant negatives. I think that there was some controversy and very important input from people who supported more environmental preservation than we did particularly on the Southwest portion of Lake Raleigh. There was a group who identified that as a very delicate environment and still wants that preserved. I think that was a very healthy input from that group. I think there was always a group who were not enthusiastic about the golf courses as they consumed 250 acres of land. These were some of the sort of ongoing criticisms that I recall. They mainly came from within the campus.

Q: Okay. Can you think of a specific event that might have marked when Centennial could come to be thought of as a successful project? There is no doubt that today there are lots of companies who want to locate there. They don't have to do as much marketing as they once had to do in the past. Was there something that sort of signified it becoming a successful institution during your time there?

Harris: I don't recall any one sort of individual date that a critical mass was reached, but I do know that it started to move slowly. I certainly think having the College of Education building there and the research buildings. I think that Craig Davis and his work with the partner's building certainly gave a push. I think that was a significant initial investment from the private sector. Maybe it was when all that cluster was finished that we reached some sort of critical mass that the momentum started going. Now I certainly think, with the bond issue, the projects have given it increased momentum. It is going gangbusters right now.

Q: How do you think Centennial has improved NC State as a university?

Harris: Well I think just from the dimension that we've talked about this new dimension of integrating government and private business into the campus, I would assume that would be an improvement. Maybe someone would argue with that, but I think that it is… I think it certainly has given the campus colleges more opportunities. I can't specifically speak to what improvements have been made.

Q: What do you think it is going to look like in 50 years—NC State University. What do you hope it will look like? What do you hope Centennial will achieve?

Harris: I would hope that the way I think we originally envisioned it—it would be a dense, urban and most importantly, a very vital place that would have the village core to it. People would go over for lunch. They would get off of the TTA, take our fixed guide way over for lunch and hang around the lake and have a glass of wine. There would be the exchange between graduate students and the corporate researcher and all the things that we imagined in the beginning. But I would hope that it would be dense, it would be vital. It would not be so pristine as it now. It would be a little… What is the word I'm looking for?

Q: User friendly?

Harris: Well, user friendly, organic, but a little more funky, more of an urban place where ideas are exchanged. I think that is what I would envision.

Q: Is there anything else you'd like to add that we haven't covered about your experiences or thoughts that you'd like to leave us with about Centennial?

Harris: No, it is just that I really, really enjoyed working on it from a design point of view. It is sort of a university architect's dream to start a new campus while certainly working on the older campus. It was a great experience. We were able to take things that we learned from the original campus and apply it to Centennial Campus. A good example of that is North Creek which is one of the main streams that runs between the College of Education building by the Engineering building and how that became a kind of organizing design feature. We have a storm water system. We have a pedestrian bridge going over that and that became a unique feature. And if you compare that to how we've treated Rocky Branch, up until recently, on the main campus, I think that is really a neat story because it reflects, I think, the learning part on all of us who have been involved in both campuses in gaining a respect for the natural environment. I think Centennial Campus, in spite of its urbanity and its dense urban design, it will reflect well on the preservation of that environment.

The original Master Plan showed a series of small scale buildings wrapping around the main ridge with a larger forested valley entering the center of the campus from the southwest.

The plan was organic in nature and its primary character was developed from the interaction of village-like structures with the natural topography and vegetation of the site. The traffic circulation was composed of smaller loops feeding into a central thoroughfare wrapping around the ridge.

This plan evolved over time into a more formal arrangement. The scale of buildings increased as did the road and walkway systems. The main loop of automobile traffic was increased in scale and became a central feature alongside a connecting mall to the north and a new town center toward the south leading down the main ridge to Lake Raleigh.

Initially there was some apprehension among some residents in the nearby community to the potential loss of natural landscape around Lake Raleigh. Further refinements then included limiting new development to the south of Lake Raleigh to allow for more of the natural landscape to be retained.

The central park space at the center of the campus that was somewhat organic in nature in the initial master plan became more formal. The rather amorphic shape of the space became more clearly defined into an elongated lozenge shape, strictly defined by its perimeter building facades. The resulting space has been called the Oval and is seen as one of the primary features of the new Centennial Campus Master Plan.

The Master Plan states that "The Oval is seen as the main symbolic center and landmark of the campus. The Oval intends to be a recognizable and unifying campus form. The central open landscaped space, a Campus Green, is to be defined by buildings whose individual expression will defer to the contextual harmony of the overall composition."

In order to energize the activities on the campus it was also then envisioned to place a central library facility at the core of the plan. The Hunt Library became a central feature for creating a cohesive environment for the various, sometimes independent, facilities on Centennial Campus.

The Master Plan states that "Locating the Hunt Library on Centennial Campus will serve to create a gathering place for students and professionals, becoming a hub for this part of the campus."

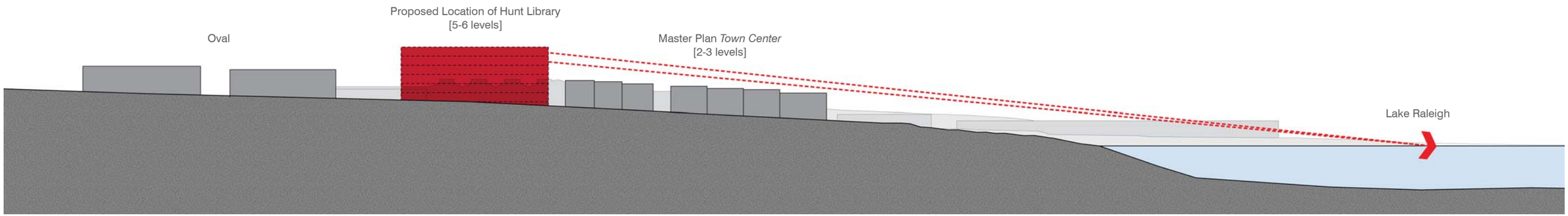
In order to more fully capture the spirit of government and private interaction the Library also was envisaged to incorporate facilities for public policy, awareness of government, and humanities functions, further extending the connection of the physical sciences into a wider definition of community.

Centennial Campus

7. Site Analysis

a. Introduction
b. Defining the Issues
c. Site Selection
d. Physical Properties
e. Comparisons
f. Massing and Scale
g. Conclusions

Aerial Image - Centennial Campus



Site Section Diagram

Introduction

The site proposed for the Hunt building on Centennial Campus has a dramatic topography with potential for views toward Lake Raleigh. The hilltop site has high visibility from Main Campus Drive and within and around the Centennial Oval. Partners I and the College of Textiles are its immediate neighbors and downtown Raleigh is clearly visible in the distance.

“Centennial Campus needs something more than just functionality. This building needs aesthetics and visibility.”

Defining the Issues

There are major challenges of locating the Hunt Building on the Centennial Oval.

The charge for the Hunt Library to be a signature building, an icon for the University can be seen to be conceptually at odds with the open space of the Oval which is the icon of Centennial Campus. This potentially creates a dichotomy of creating two central icons.

The Centennial Master Plan calls for the buildings surrounding the Oval to conform to the formal Oval form and to eachother. The mandate for the Hunt Library is to be a signature building.

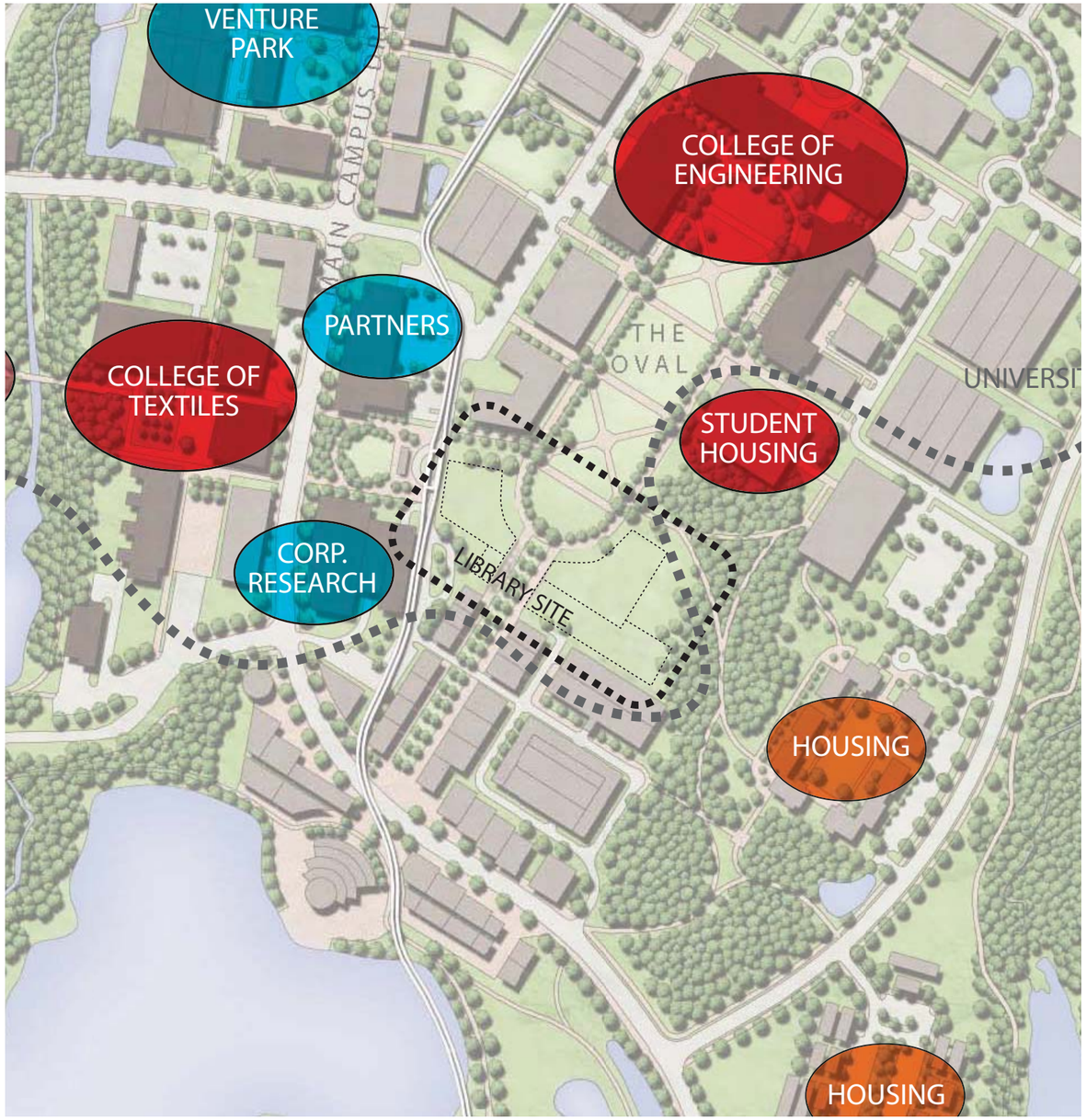
One cannot stand out and also conform. It is not possible to avoid this issue and create a successful building.

There is an overall need for a heart, or hearth for Centennial Campus, helping to connect Centennial Campus with the rest of the more established campus to the north. A solution to this dilemma would perhaps be a seamless collaboration between the iconic outdoor space and the iconic building structure. In this way they strengthen each other and create a center of gavity for this place.

How can these two important ideas work together?

Can the Library and Oval merge their identities?

There is great value to be found in the fusion of the Hunt Building, as a place to nurture collaboration and discovery with a significant outdoor space which supports and engages in these ideas.



NCSU - Centennial Master Plan Oval

Site Selection

Because of the socially vibrant character of the new Hunt Library Building it was considered necessary that it be located centrally within the academic area of the Centennial Campus.

Several areas were discussed in relation to placing the building and these options were reviewed with the Building Committee.

1. Open sites west of Main Campus Drive and south of Varsity.

    These areas were considered viable options due to their central location in terms of future density in the Master Plan. Future and existing classrooms tend to be located primarily in this area and it was seen as po tentially more accessible. Also existing infrastructure is already in place making the preparatory work for realizing the building less costly and simpler. Finally it was also understood that the first new parking struc tures to be built that could be used by the Hunt Build ing visitors would be in this area adding additional po- tential to these sites.

Negative consequences of this choice however were quite sub- stantial. The new Library in these locations would be remote from future housing and student activity buildings planned for the areas east and south of the Oval. Since the library is not meant to be an extension of an individual academic department and is instead envisaged as a resource for the entire campus, these sites were considered less desirable. Also the available sites showed less character in terms of exposure to visitors and could create some difficulty in orientation. Ultimately there was little support for this option.

2. Open sites surrounding the Oval.

    The areas surrounding the Oval were considered to be the primary candidates for locating the build ing. The location of the Oval in close proximiy to both academic buildings as well as housing and other stu dent activity centers makes these sites very appealing. The building would be more highly exposed to the en tire campus population providing it with the necessary focus needed to increase use. Also these locations were among the highest in the area meaning that up per levels could benefit from views to Lake Raleigh and back to the central campus areas to the north.

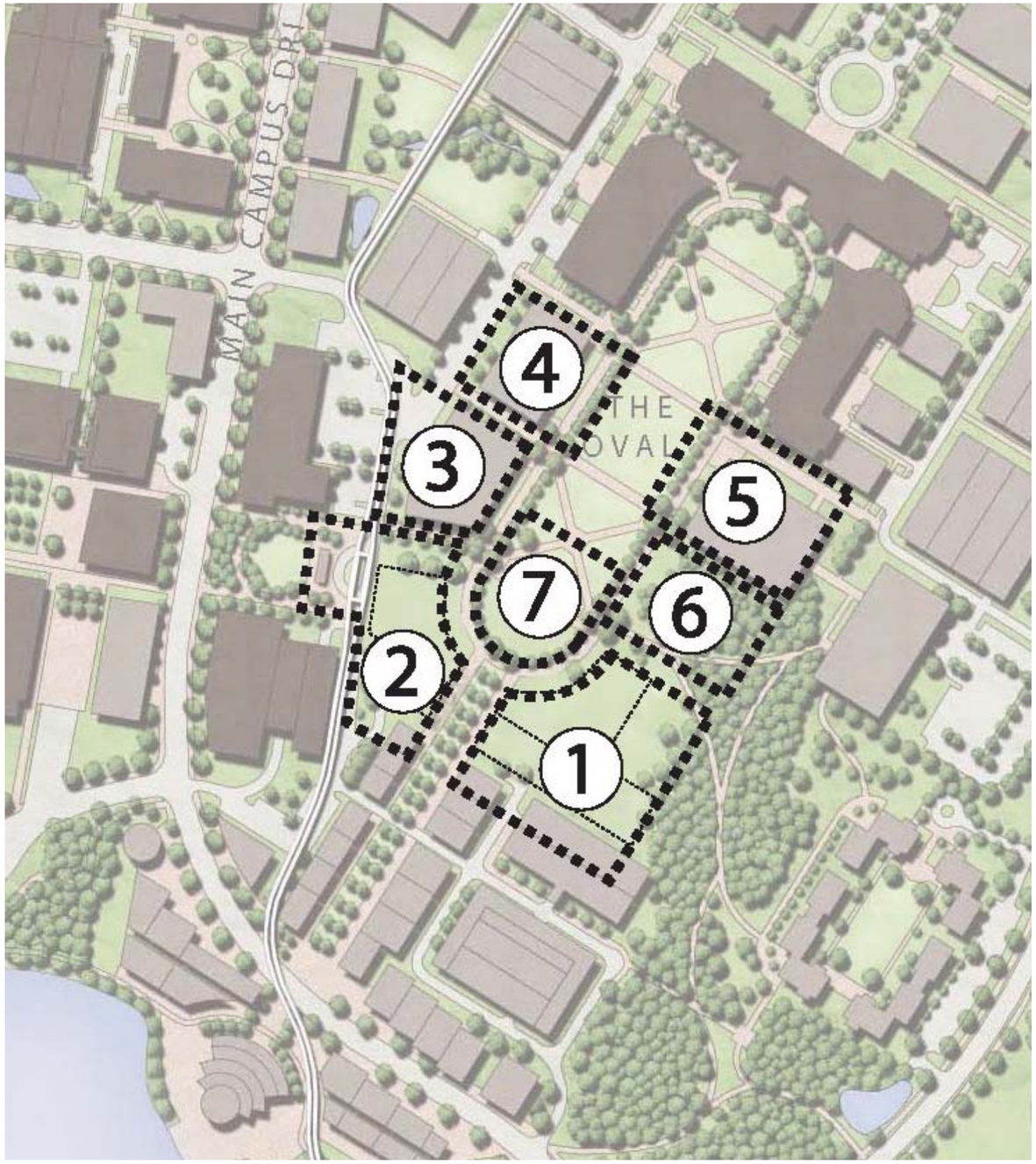
The relative remoteness of the available sites on the Oval to the existing built structures means that more infrastructure and ac- cess may need to be provided.

Depending upon where on the Oval the building is located, the structure could stand alone for some time until the remainder of the Master Plan is completed.

Potential future adjustments to the Master Plan beyond the con- trol of this project could lead to unexpected relationships to the surroundings.

More detailed consideration of specific locations along the Oval are described on the following page.

“The building should be a bridge, a building that people will associate with Centennial Campus, a landmark.”



Site Selection, continued

A closer look at the locations around the Centennial Oval were considered for locating the Hunt Library:

Option 1

The Southeast corner has an adequately sized footprint which gives the needed flexibility for the design of the ground floor. It is the greatest distance away from the available utility lines. It is perhaps visually remote and has a remote connection to the existing buildings on Centennial Campus. This location offers good North/South exposure. The loading dock is easily accessible of the eastern service road, but this road must be built along with the building. If built here, the Hunt Library will stand alone and isolated until the completion of the Master Plan.

Option 2

The Southwest corner of the Oval offers the greatest visual impact from the nearby roads, is releatively close to utility connection points and has easy access off the existing service road to a loading dock. Building here positively enhances the density of the existing campus, indeed the bulk of the campus is on the west side. Built here, the Hunt Library is close to its neighbors, accessible to pedestrians and by being on a corner occupies a more “charged” portion of the Oval. The available footprint is relatively small here and would need to be expanded.

Option 3

This site, just north of option 2, and occupying a side slot on the lower third of the Oval has since been slated for EB IV. However, during this exercise it was considered to have the following attributes: it is very close to the incoming utilities, it close to the service road, but loading activity could potentially disrupt parking in the existing lot. Its location on the Oval is in the lower third, not in the middle, but close. This position is neutral, belonging to neither the lower nor upper portion. It is equally accessable as location 1 but has slightly less visibility. This site has good opportunities to capture North/South light.

Option 4

This site, just further north has a relatively small footprint and would yeild a taller building or one that extends into the Oval green. Along with site 3 this site may also be occupied by the future EB IV. There is limited space for a three bay loading dock though it is adjacent to the service road. This position is somewhat static, being about mid-point down the length of the green.

Option 5

The North/East is to be occupied by student housing, and with its proximity to more future planned housing and the valley it is well suited to this use. As a location for the Hunt building it is a great distance from the utility pick-up point, it is further from the bulk of the campus buildings, and like Option 4 this location does not easliy lend itself to announcing a strong presence.

Option 6

This the least viable. Most of this location is valley with thick vegetatiion which would require significant regrading. Like Option 5 access to the loading dock is more complex.

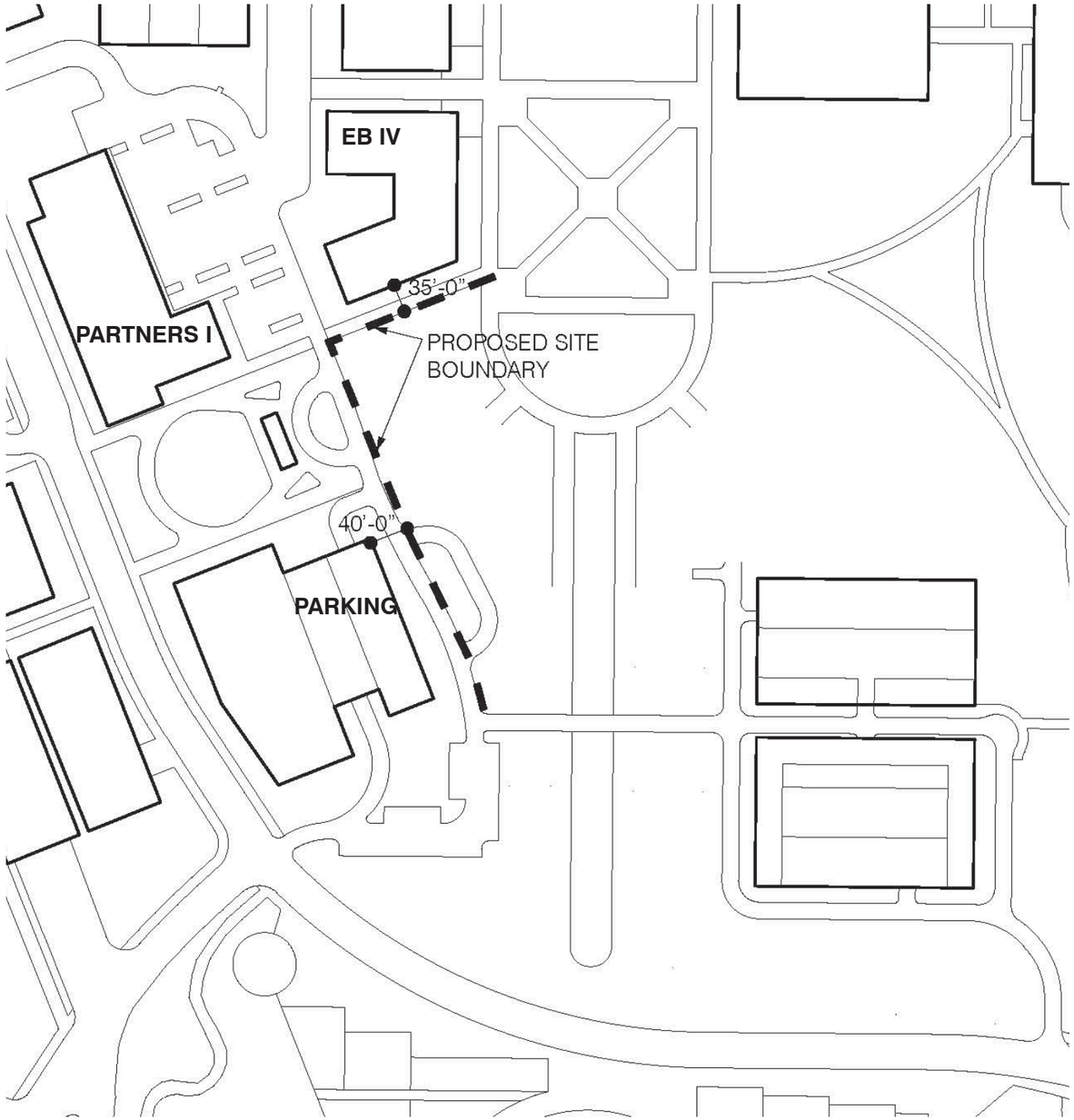
Option 7

This occupies the lower third of the Oval green itself. This location would likely need significant integration into the landscape. Service access is complex and begs the question “where is the back side?”. This location also effectively reduces the length of the Oval green and potentially separates it from the proposed Town Center.

In conclusion Option 2 offers the greatest flexibility in terms of design solutions, has good access to utilities, a logical loading dock location and good opportunities for capturing desirable light. It is the most visually accessable location, is approachable from both the proposed Town Center and the existing builidngs on Centennial Campus. The Hunt building in this location has the potential to integrate the Town Center and Oval green into a unified whole. Physically joining different parts of Centennial Campus is one way the Hunt building can achieve its mandate to be a signature, iconic building.

To further test these findings it is necessary to look at a building volume in three-dimensions in the two most likely locations, options 1 and 2. This can be seen on page 72 of this report.

7 Site Analysis



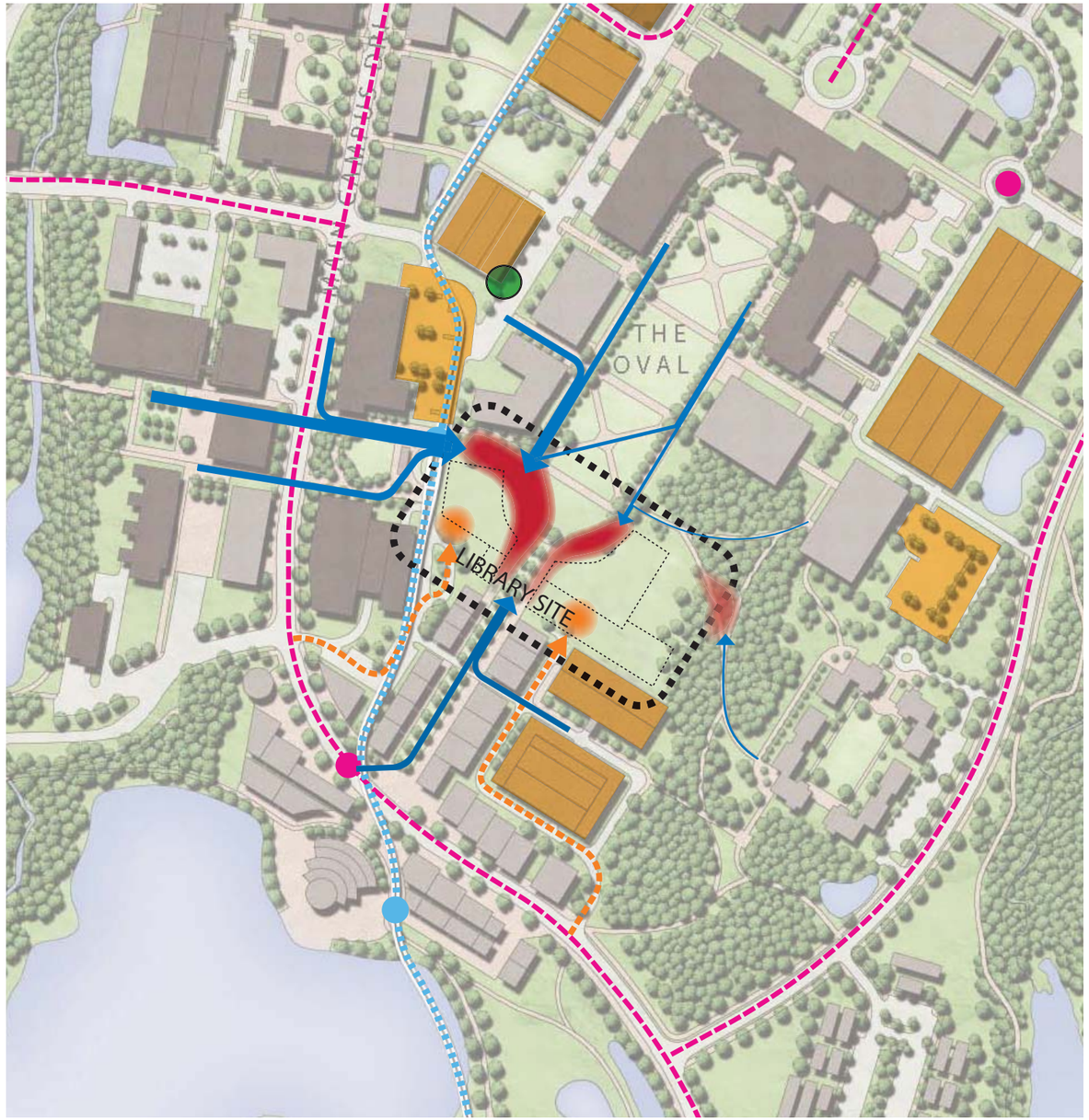
Site Boundaries

If site number 2 is to be the location for the Hunt Library, then it is important at this early stage to set at least two boundaries in order to allow for the planning of the future Engineering Building IV, or EB IV.

We suggest that the northern most boundary of the Hunt building be offset thirtyfive feet from EB IV, and that the western most boundary be offset forty feet from the parking structure following along the service road.

Boundaries on the remaining sides remain to be determined as the design develops, but as can be seen on the concluding page of this chapter will not significantly encroach into the open space.

7 Site Analysis



NCSU - Centennial Master Plan Oval

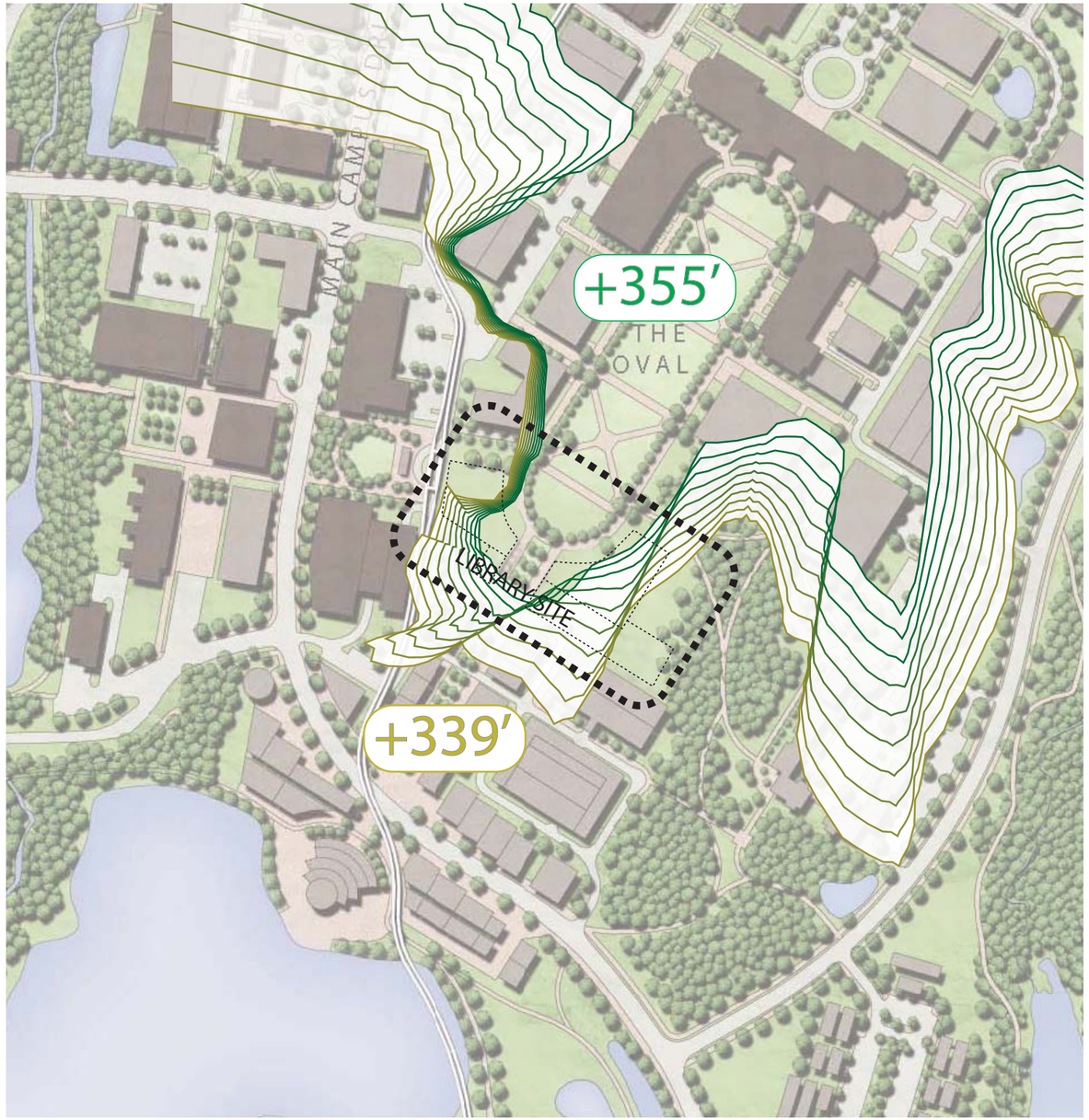
"When you drive by the campus, somehow it has to be situated so that you can also see it from a car."

Physical Properties

The location of the Proposed Hunt Library will be contingent upon many factors which include proximity from parking structures, access roads and areas of existing pedestrian activity. Its eventual location must not only relate to the factors above, but also mediate between the activity in and around the Centennial Campus Oval and that of the future Town Center.
The blue arrows in this diagram anticipate pedestrian activity between the existing and future buildings, existing and future parking structures, future people mover and the Town Center. This indicates a concentration of people in the southwestern corner of the Oval, and would be a likely location for the main lobby of the Hunt Library. This diagram also suggests that the connection between the lower, western side where the Textiles building is and the Centennial Oval should be strengthened.

Utilities.....
Roads.....
Parking.....
Pedestrians.....
People Mover.....

7 Site Analysis



NCSU - Centennial Master Plan Oval

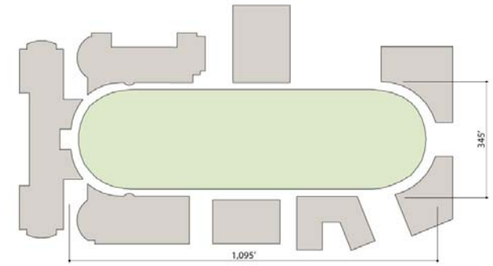
Physical Properties

As of early 2008 only two structures had been completed alongside the Oval. Furthermore only about 25% of the actual Oval had been realized. These structures, Engineering Buildings I and II are located at the north and northeast of the northern most portion of the Oval. A new site for Engineering Building III on the east side had been cleared and at the time of publishing this report the new structure had begun to be built.

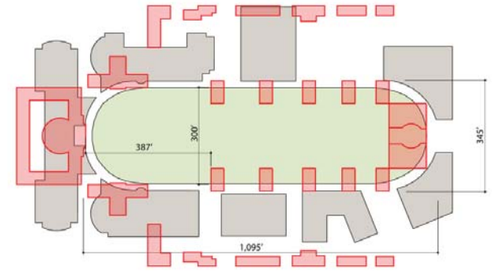
The Oval at the north end now under development is characterized by layers of pedestrian movement, seating and colonnades. The innermost layer is open to the sky and a formal ring of trees is planted toward the inside of the path. To the outside of the path another less formal planting is designed and integrated with various gazebos and seating areas that line the building facades. The Oval itself is limited to open grass.

The southern end of the Oval is currently undisturbed and is characterized by forestation and various subtle topography punctuated by smaller run-off channels. A few small meadows and a path lead down the ridge toward Lake Raleigh.

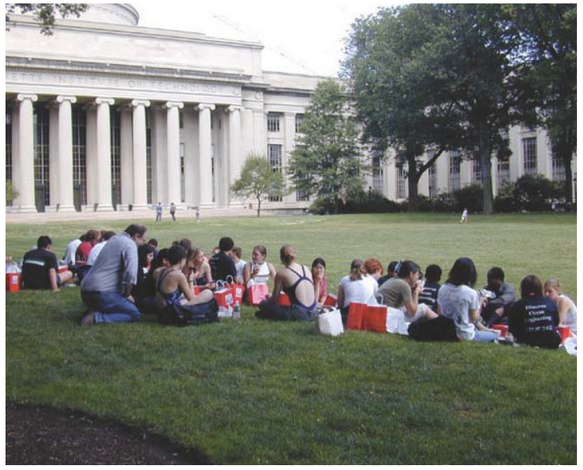
The northern portion of the Oval slopes gently toward Lake Raleigh. On the lower portion the grade change is more dramatic, sloping from approximately elevation +355 to elevation+339. The areas to the west and east sides are also at the lower elevation, with a deeper valley on the east side. The upper floors of the Hunt building should be able to take advantage of views of Lake Raleigh, downtown, and the rest of the campus. This creates a dramatic presence for the buildings on the ridge.

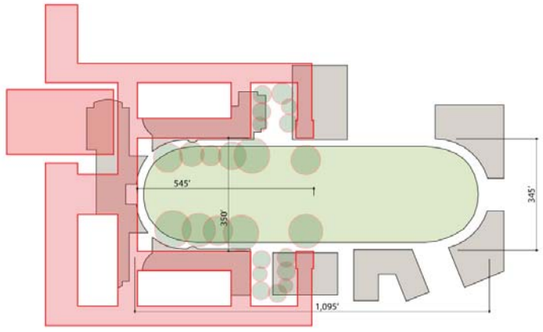


NCSU MASTER PLAN - OVAL



UNIVERSITY OF VIRGINIA - OVERLAY





M.I.T. KILLIAN COURT - OVERLAY

Comparisons

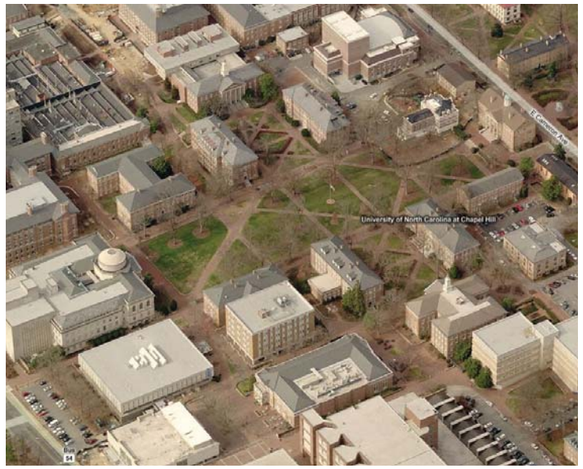
The many precedents for campus lawns that can be found offer useful insight into the issues of scale, proportion and character when defining the use of such large, open spaces. These places play a vital role in creating the identity of a campus, and indeed, form part of its heart. A clearly defined open space signifies a place to gather, and so to interact, discuss, debate, or to be alone among others.
In order to gain a feel for the scale and size of the Centennial Oval several familiar campus lawns were looked at and overlaid on Centennial Campus.

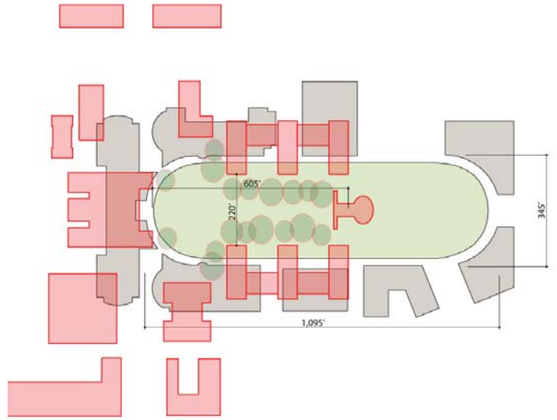
UVA

Conceived in 1819 the University of Virginia is well known for its central lawn, its library (rather than its chapel) occupying the place of honor at the head of the shared lawn.
When overlaid with Centennial campus the difference in building scale is not surprising given the history of UVA. However, the size of the open lawns of UVA and Centennial Campus do not differ as dramatically, and share the same width for about 30% of the area. Otherwise, the Centennial Oval is slightly larger in width and length. Both have a gentle slope. Both are lined with trees.

Killian Court, M.I.T.

Killian Court and the Centennial Oval have the same width, with Killian court being about half as long, its vista extending into the Charles River. The buildings surrounding the lawn are smaller in width than Centennial Campus buildings, but are interconnected so that they read as one, massive expanse with inner light courts. The width of Killian Court is effectively narrowed by trees along each side and the center of the lawn being a few feet lower than its sides in elevation. Students are fond of laying under the trees against the gentle slope on sunny days.





UNIVERSITY OF TEXAS, AUSTIN - OVERLAY

UNIVERSITY OF NORTH CAROLINA, CHAPEL HILL - OVERLAY

Comparisons continued

University of Texas at Austin

The forty acre Master Plan, created in 1933 by Paul Cret was based on the general Beaux-Arts principles of balance, axial arrangements, and symmetry and set the stage for a period of growth for the campus. It's central lawn, or mall is based on the idea of a town hall, with a welcoming, raised for-court and tower as its focal point. Today, the size of the mall and its surrounding buildings adequately accommodate its almost 50,000 students. Six side courts, terraced planes, retaining walls and well grown trees create a variety of scale and place.
The Centennial Oval is almost twice as long and slightly wider than the UT mall. The setting of Centennial Campus is less urban in character and thus affords vast expanses. Yet there is still the need to create a variety of place in order to be a vibrant landscape and serve as outdoor partner to the James B. Hunt Library.

U.N.C. Chapel Hill

Polk place functions as one of the hearts of the campus and has Wilson Library at its head. The buildings along the lawn are slightly smaller in scale to those on Centennial campus, most of which contain labs. The width of the lawn is only slightly narrower than the Centennial Oval, but is shorter in length. A small building is placed within the lawn, near the corner creating just enough irregularity to the symmetry. While this mall is primarily flat its many trees server to create smaller, more intimate pockets of space.

7 Site Analysis

THE BRICK YARD - OVERLAY

Comparisons continued

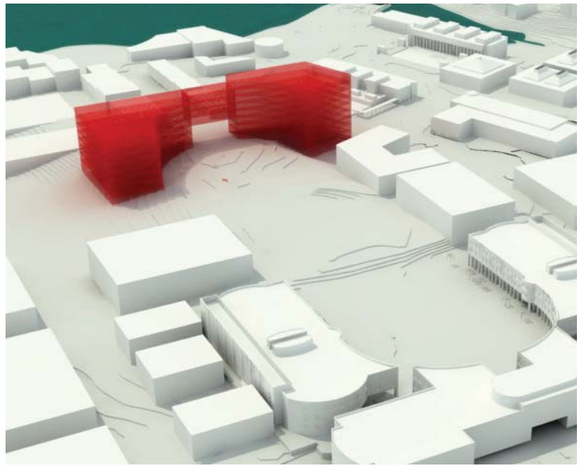
The Brick Yard, N.C. State University

The D.H. Hill Library is the focal point of the Brick Yard on the northern campus at N.C. State. Between one half and one third of this outdoor space is paved with brick in a lively pattern. There is a sound sculpture placed on the lawn. This space is comparable to the Oval lawn in both width and length, but the Brick Yard is defined by irregular edges. The buildings are each of different size and typology and are not othogonal to eachother. Today Harrelson Hall, which is circular in form protrudes into the open space, though this is slated for demolition in the near future. Bike racks, outdoor lunch seating and the library portico which extends into the yard help create a sence of place and a lively atmosphere.

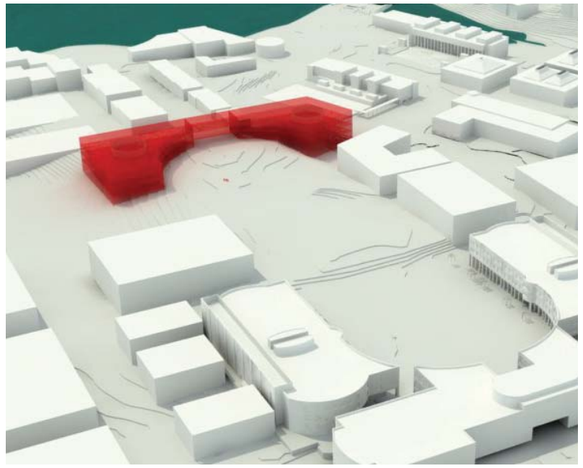
COURT OF THE CAROLINAS - OVERLAY

Court of North Carolina, N.C. State University

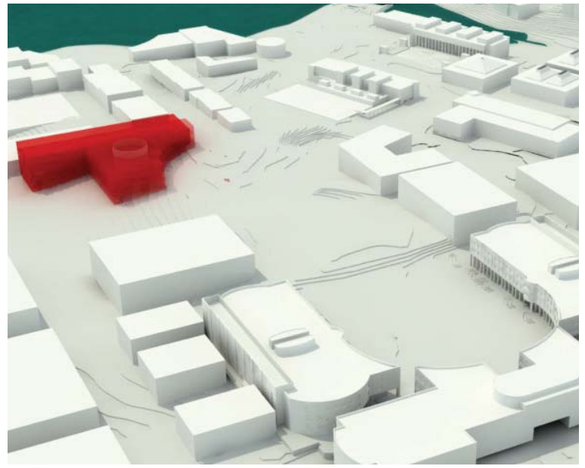
This court is unusual in character. The 1911 building at its head would imply a formal symmetry for the lawn and surrounding buiidngs but it does not follow through. The buidings on each side are each unique in character and start to fall out of alignment toward the eastern edge and in fact two buildings, Peele and Holladay hall could be considered to sit witin the court. However, the placement of the trees are what ultimately define the edges of the Court, and thus is perceptively about half the size compared to the Centennial Oval. Leasar Hall sits at the same angle as Peele and Holladay Hall and so would seem to belong more to the space they form than on the Court of North Carolina. The soft undulations in terrain and organic pathways help create a pleasing and intimate character.



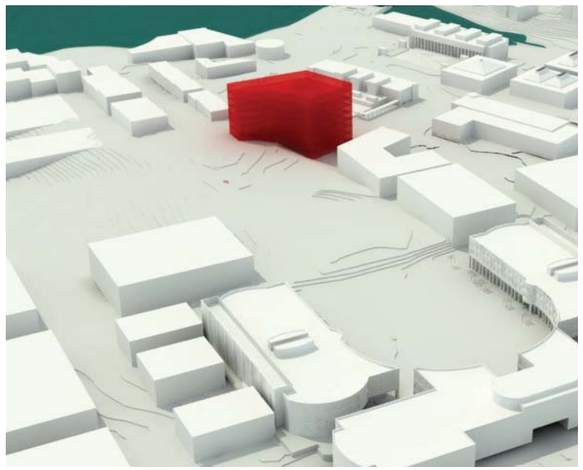
1. 490K SF MASSING STUDY - PROGRAM WISH LIST - JOINED SITE



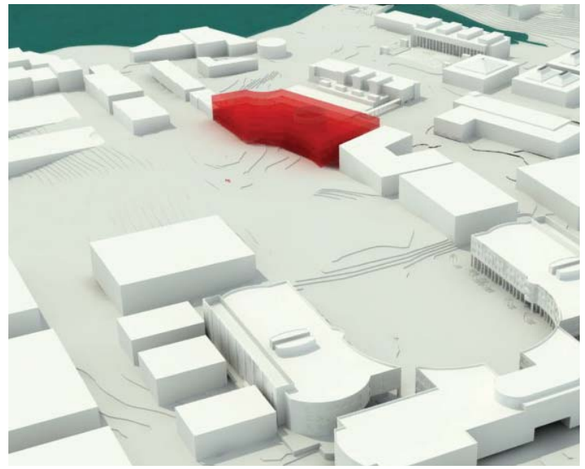
2. 180K SF MASSING STUDY - JOINED SITE



3. 180K SF MASSING STUDY - EAST SITE



4. 180K SF MASSING STUDY - WEST SITE



5. 180K SF MASSING STUDY - EXPANDED WEST SITE

Massing and Scale

The initial volume studies done in the early stages of programming reflect the initial iteration of the room program, or “Wish List” of 490,000 GSF, and an assumed target of 180,000 GSF for comparison purposes. No assumptions are made regarding the design of the building, its location, or adjacencies of certain program items. These volumes are simple extrusions of the outlines represented on the Centennial Master Plan.These studies were done in order to further verify the previous exercise of determining the most viable location for the Hunt Library and to see the consequences of site choice in three-dimension. This exercise was also done prior to the sucessive, reduced iterations of the room program.

490,000 GSF would occupy both sites on the southern end of the Oval and be nine floors in height. The scale of this volume dwarfs the existing and remaining planned buildings on Centennial Campus and interrupts any vistas from the open outdoor space. It divides the Oval lawn from the proposed Town Center.

In order to match the scale of the Oval’s existing and proposed buildings the Wish List is reduced down by more than 50% for this exercise. Again, this does not represent specific program reductions but is simply a ‘what if’ reduction in overall size. This 180,000 GSF is spread over the two sites at the south end and is three floors above Oval level, but comparable in height, thougj taller, to the surrounding four story buildings, assuming a floor to floor height appropriate to libraries. While the overall scale of this volume is more compatible with its surroundings it also divides the open lawn from the proposed Town Center. In addition it falls short of addressing the charge of creating a signature buildng and visual destination as this carries equal weight to EB II at the opposite end.

Illustration 3 takes a closer look at what was referred to as site 1 on page 59. Occupying the East site with 180,000 GSF allows for a lower building as there is more footprint available here. The building in this location at this scale is remote from the bulk of the buildings on Centennial Campus and is furthest away from its available utilities and is somewhat visually hidden. The wish to see the building while driving the nearby road is not achieved.

Examples 4 and 5 show the program distributed on the west site of the Oval. This site seems to be the more viable option for locating the building, but would need to occupy a larger footprint than is delineated on the Master Plan. This represents an extrusion of the Master Plan outline and is eight floors high. This has visuall impact, but the footprint is too small for the large program elements that need to be adjacent to each other at one level. Example 5 spreads the program over a larger area and is thereby lower in height. However, the potential for visual impact and creating an iconic presence is strong here.

NCSU - Centennial Master Plan with suggested location for the James B. Hunt. Jr. Library

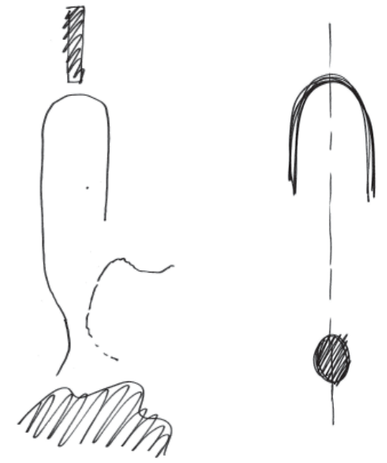
Suggested zones for future built form [Town Center and Hunt Library]

Conclusions

In conclusion there are many issues to keep in mind as the project moves into Schematic Design.
Our analysis of other campus lawns has shown the benefits to be gained by defining a variety of outdoor rooms by subtle manipulation of the terrain and the careful placement of vegetation. Ironically the clearly defined space becomes more clear and memorable by softening its edges, either with vegetation, building form or topography, and like a beauty mark, inserting a small bit of irregularity.

With the ever increasing need for conserving energy, the implementation of Senate Bill 668, and North Carolina's general mandate to place energy concerns as a top priority the need to feel an emotional as well as a technology-based connection to Nature is paramount. The Hunt Library and Centennial Campus have a unique opportunity to explore this connection. The heart and hearth of Centennial Campus, the Oval green is superbly situated to embrace the beauty of Lake Raleigh and its nearby micro climates and habitats. This has the added benefit of offering the student and visitor an alternative to the rigor of the technical sciences by being able to connect to the organic order of the natural world.

In order to sew together the Oval green with the Hunt building a transistional zone between outdoors and indoors, an outdoor hearth as partner to the building's indoor hearth will help establish a sense of inevitability for this important project.



Lake Raleigh serves as the southern terminus to the Centennial Oval

"(The building) should be visually striking and we hope that the project will be an attraction to everyone, aesthetically and otherwise."

Salvador Dali

8 **Pre-Design**

a. Landscape
b. Spatial Relationships
   i. Entrances
   ii. Circulation
   iii. The Hunt Gallery
c. Massing
d. Conclusions

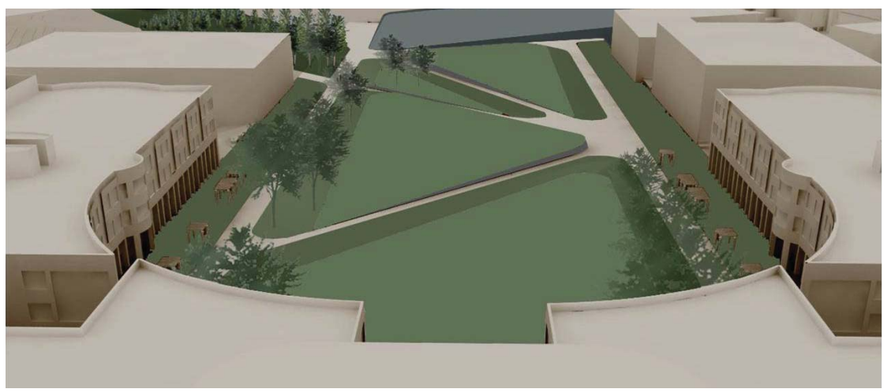
Centennial Master Plan - Progress to date

North Carolina Piedmont

Landscape

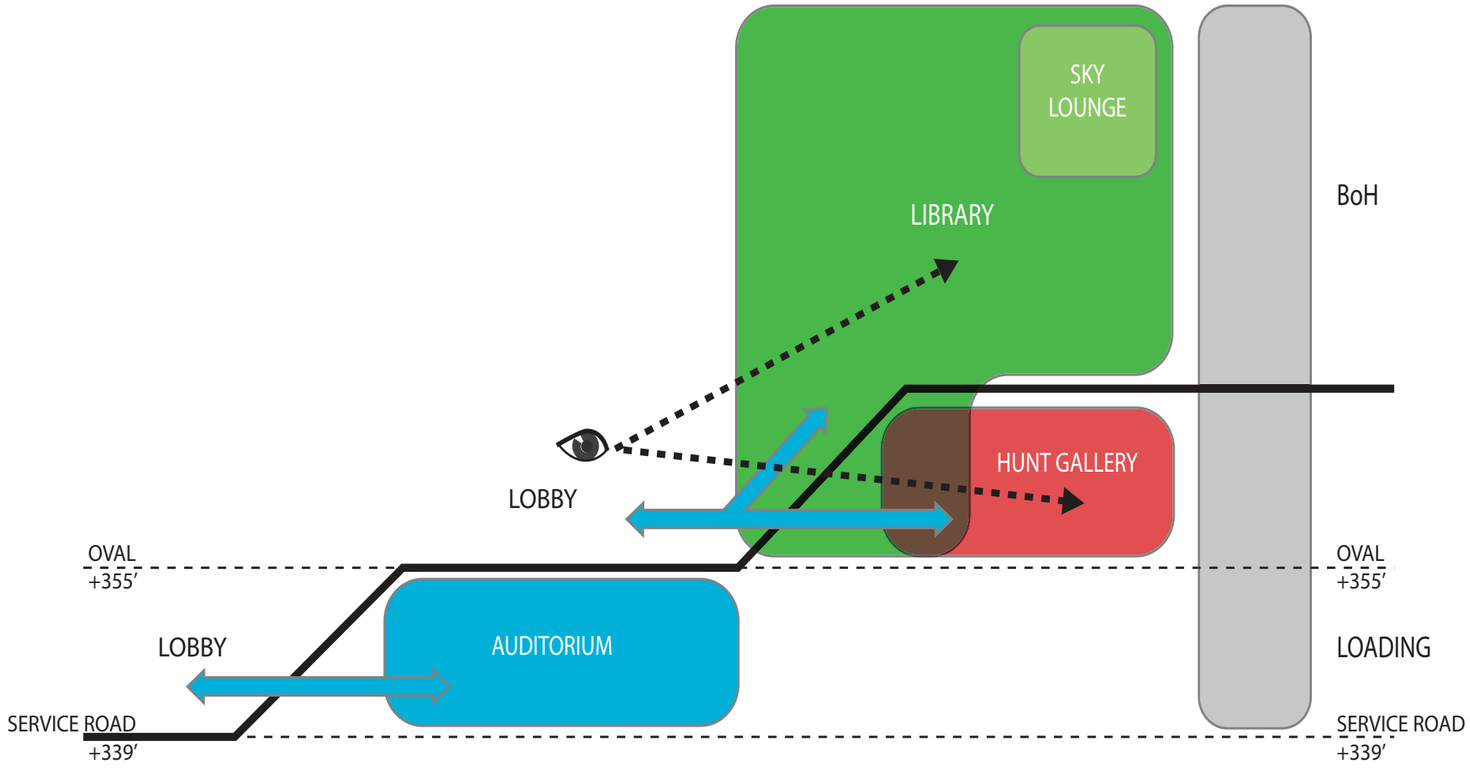
Today only the upper third portion of the Centennial Oval is graded; this is the part in front of EB I, EB II, and the soon complete EB III. The remaining existing topography is several feet higher than the newly created entrance level lawn. When one stands in front of EB II today and looks toward Lake Raleigh the view is that of tall trees, who's base is slightly above eye level. The remaining two thirds of the Oval requires re-grading to create a gentle level change and to meet the entrances of future building, including the Hunt Library.
Carving space through the higher ground, weaving through the site affords the opportunity to create smaller outdoor rooms while still remaining completely open. Smaller micro-environments are created, each with potentially unique characteristics. This approach greatly reduces the need to displace vast amounts of earth and represents a potential savings in site works.

"The building should stand out strategically, but within its context"



Informal order within a formal order

Undulating ground and pathways create variation in scale



PROGRAM CIRCULATION ADJACENCIES DIAGRAM - SECTION

"(There is) the need to address the diversity within the audience, a space that is comfortable and comforting, but still exudes energy about looking forward."

8 Pre - Design

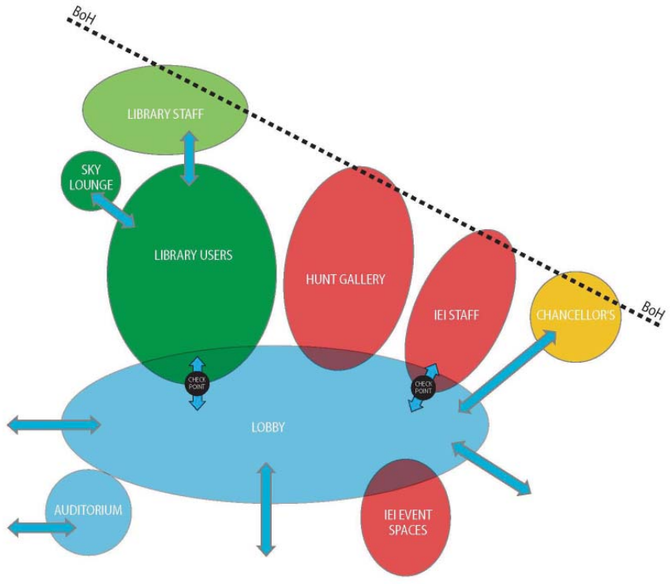
Spatial Relationships: Public Areas

There are several issues inherent in the room program that could create a poor visitor experience with respect to usability.

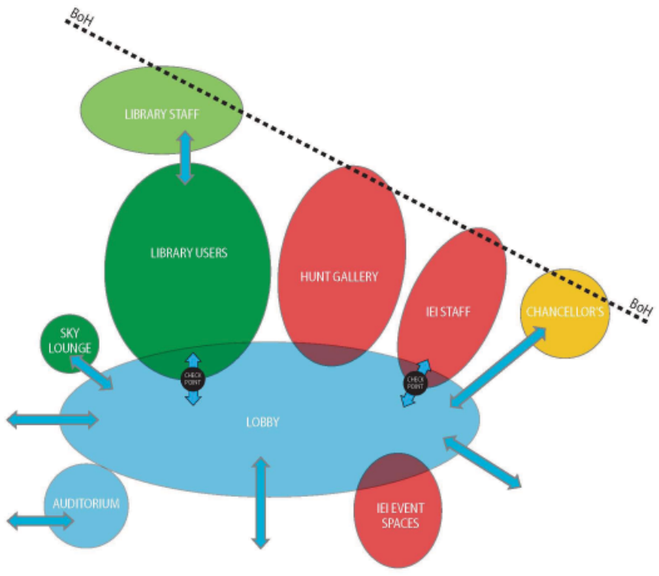
The room program is challenging in several ways. Firstly there are three primary user groups within the building. Also the room program is somewhat large making it potentially difficult to navigate through a larger building. Logistics are complicated in part due to the fact that there is considerable sharing of many of functions despite the separate identities of the user groups. It is important therefore to diminish the number of impediments that might detract from an effective user experience.

Orientation and accessability are the two most important characteristics that must be carefully developed in the new design. It is important that a user know how to navigate within the building without support. Also it is important that the different institutions within the building are easily accessed from the main lobby level. One scenario to address these issues is shown in the adjacent sketch.

It is likely that there will be two lobby levels, one at the service road level and one at the higher level adjacent to the Oval. An anticipated increase in activity at the Oval level leading toward the new town center means that the main lobby activities will be at the higher Oval level. The lower service road level will be more of a foyer allowing quick access into the building from the academic buildings near to the textile school. The lower lobby may also serve as a gathering area for the auditorium if it opens onto this area. This will help to connect this lower part of the campus with the buildngs along the Oval, and avoid creating a backside to this lower area.



PROGRAM ADJACENCY / ACCESS DIAGRAM - OPTION 1
Sky Lounge is inside the library. Controlled access for all others.



PROGRAM ADJACENCY / ACCESS DIAGRAM - OPTION 2
Sky Lounge is outside the library. Open access for all, but not 24 hour.

8 Pre - Design

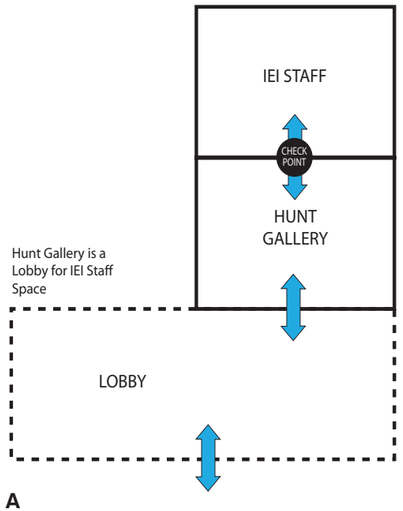
Spatial Relationships: Public Areas

The size of the Hunt building program will not fit on one level, nor is it suggested that it should be on one level. The library program will be placed on multiple levels and the public will have easy access to the various levels and also be able to understand where the program elements are without an onerous use of maps or guides. The main floor of the library itself, will be on the main lobby level for maximum accessability. Several stacking options will need to be evaluated that will allow for the easiest orientation possible for the user.

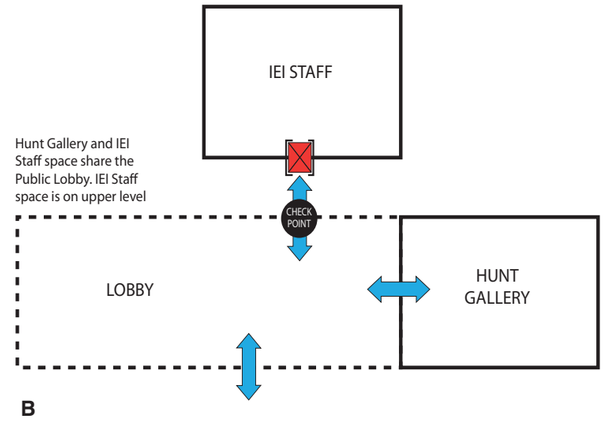
Visual clarity is also important. Visitors entering from the lower service road level should easily be able to see the upper Oval level lobby. From the upper Oval level lobby it should be possible for the visitor to see and access all of the individual institutions: the Library, the IEI and the Chancellor's Spaces. Concerning the Library, the multiple upper levels of the library public spaces should be visible.

Concerning the IEI it is most important to see the Hunt Gallery and the related Lobby group functions. The entrance to the IEI administrative functions is also important, however it is the Gallery that has the most direct visual access to the lobby.

The Chancellor's Spaces may be on the same level as the lobby however this is not vital as long as the visitor can see how to access the facilities.



A



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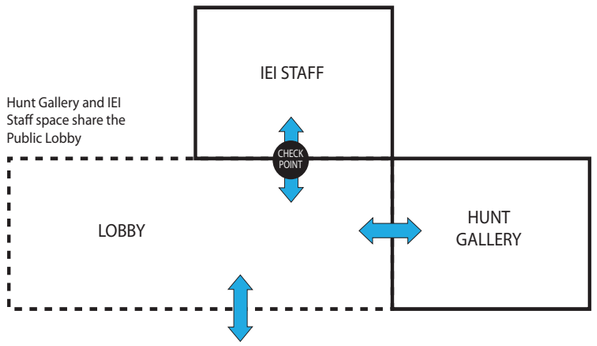

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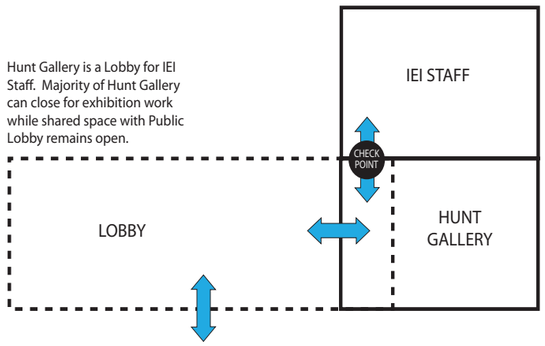


D

8 Pre - Design

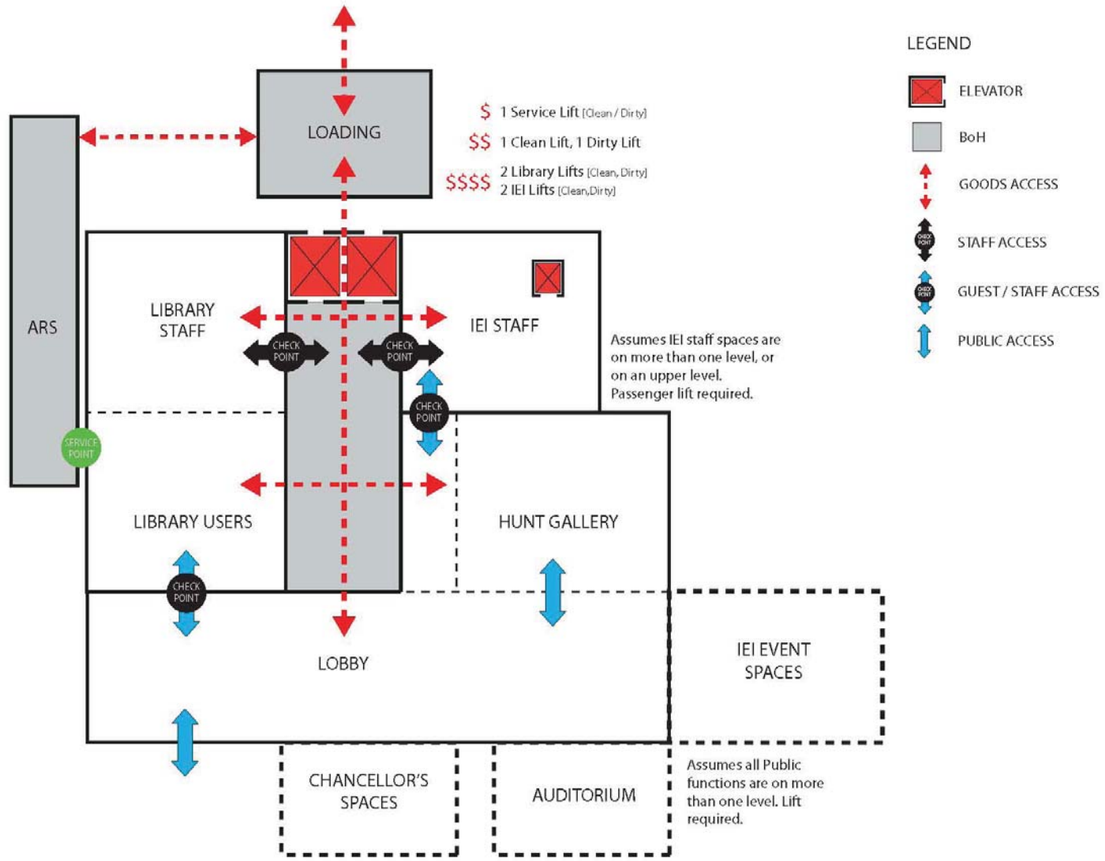
Entrances:

Several functional relationships were examined for the relationship of the IEI staff offices with the Hunt Gallery.
The Hunt Gallery can play a vital role in giving a presence to the Institute for Emerging Issues. Located off the main lobby, the gallery will likely contain both permanent and changing exhibit areas. Portions of the gallery or specific exhibit displays could be integrated into the main lobby, as well as the library to entice the user to visit the gallery.

A) The Hunt Gallery serves as a foyer to the IEI staff offices. This presumes that all IEI staff and visitors go through the gallery to get to their destination. All users would be well familiar with gallery content, which would create a lasting association with the IEI.
As the gallery will have changing exhibits there will be periods of time when the gallery will be closed for set up and strike. This would potentially be disruptive to the visitor. The gallery can also be used for evening reception and dining events, and again, the set up and take-down time may be disruptive to the user.

B/C) The IEI entrance and Hunt Gallery are adjacent and off the main lobby. This allows for maximum flexibility in the programming of the gallery and an always unencumbered entrance to the staff offices, whether on lobby level or one of the upper floors. This arrangement does not neccessarily promote spontaneous visits to the gallery; one must make a concious effort to go in.

D) Part of the gallery which contains permanent display could be integrated into the main lobby and create a foyer to IEI staff offices. This would allow the changing of exhibitry or set up for an evening event to occur without disruption to either the visitor or to the work in the gallery. Bringing exhibitry out into the main lobby will likely invite more visitors to the gallery and create an interesting feature for the building lobby.



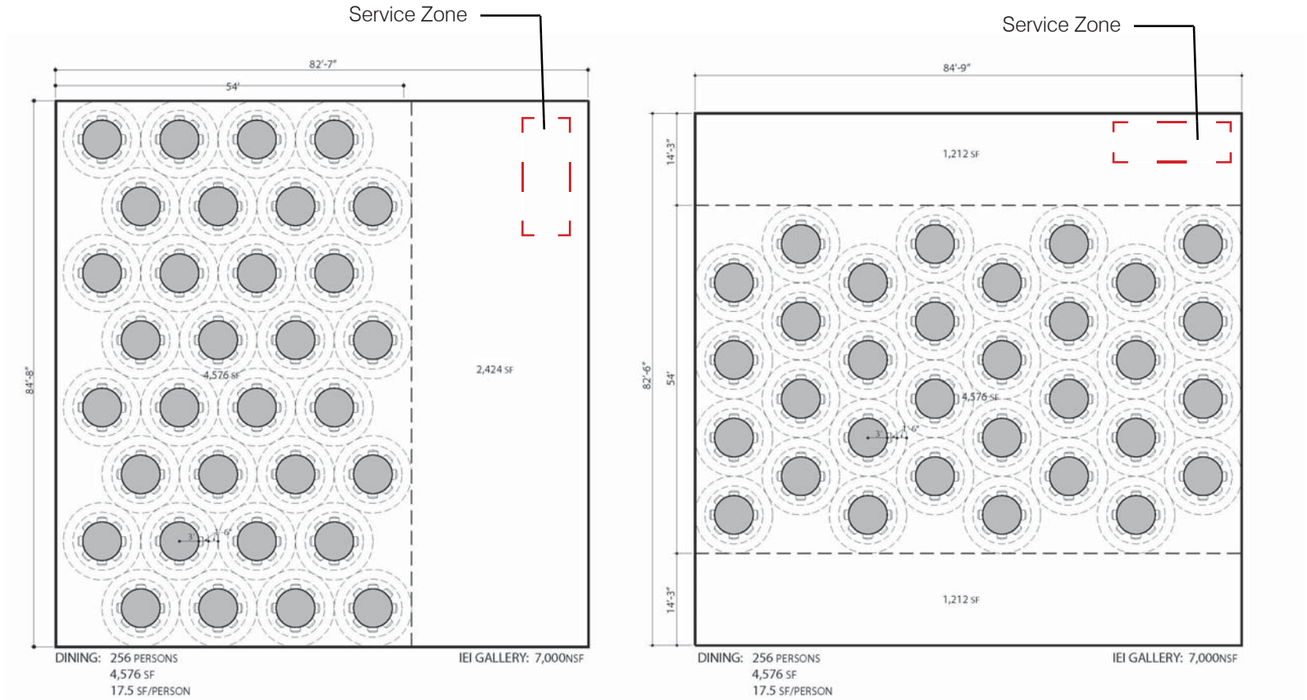
8 Pre - Design

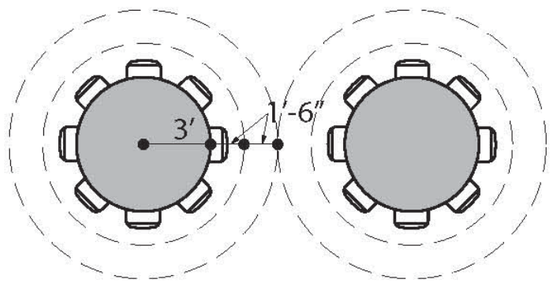
Circulation

Back of House functions are important in terms of orientation and access for the staff and there should be an easily accessible elevator system that run through the building.

The Library itself must be a building within a building in order to proctect its collections and equipment. In order to achieve this there must be a security 'checkpoint' at its entrance. The other functions located off the main lobby such as the auditorium, Hunt Gallery and Institute for Emerging Issues do not require the same level of security. The library is a 24 hour institution, while the rest of the building holds conventional operating hours.The Chancellor's spaces, IEI, Hunt Gallery, and Library all require a presence in the lobby in order to aid the visitor.

A more indepth look at zoning and security is in Section 5 of this report.





DETAIL DINING PLAN

8 Pre - Design

The Hunt Gallery

The Hunt Gallery can potentially serve after hours functions such as cocktail receptions or a dining and speaking event for the Institute for Emerging Issues, the Library, or the Chancellor's spaces. Today many galleries and museums are hosting these types of functions in their exhibit space as opposed to dedicated dining areas. After conversations with the user groups it was determined that dining for 250 guests would fulfill these needs.

Currently programmed at 7000 net square feet, the gallery can accommodate 32 round tables with 8 diners. There would likely be the need for a service zone or small buffet for coffee and light refreshment.

However, as seen from the illustrations this imposes limits on the programming and design of the gallery, which has a goal of changing the exhibits 3-4 times per year. Accommodating this many diners and likely also a speaker's podium essentially concentrates permanent exhibitry to the perimeter of the space or spaces. Changing exhibition would likely need to be moved for each such event.

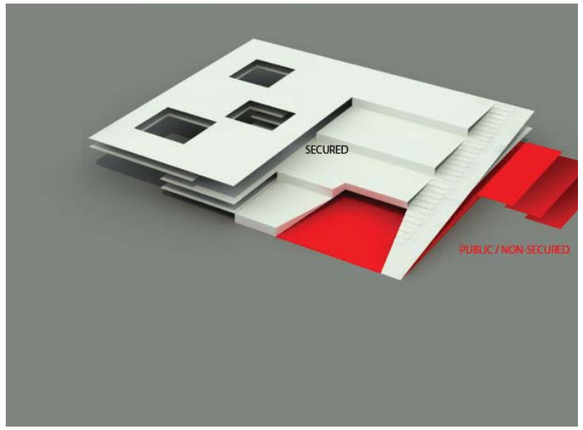
The overall form of the gallery and the exhibit design of the gallery is constrained by this double function at its current size.

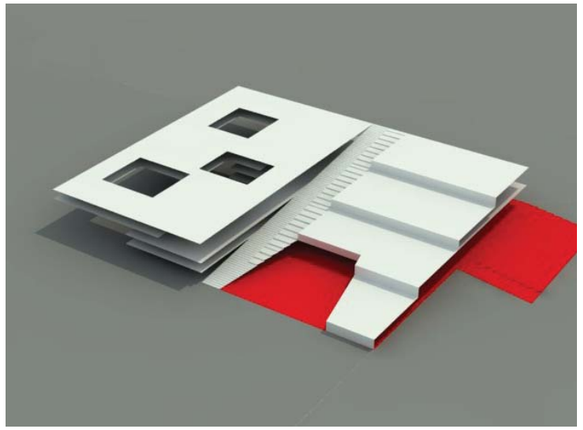
Altnernatively, it is possible to accommodate a dining event in an adjacent multi-purpose room, given the relative infrequency of such events. Cocktail receptions are significantly better suited to occurring in the gallery itself as no additional furniture is required other than a small bar zone.

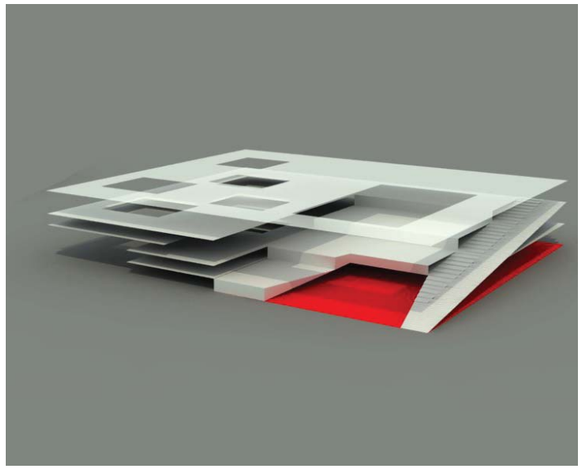
A gallery of approximately 5000 net square feet without the added function of a sit down dinner has potential for a wide range of flexibility in terms of its exhibit design.

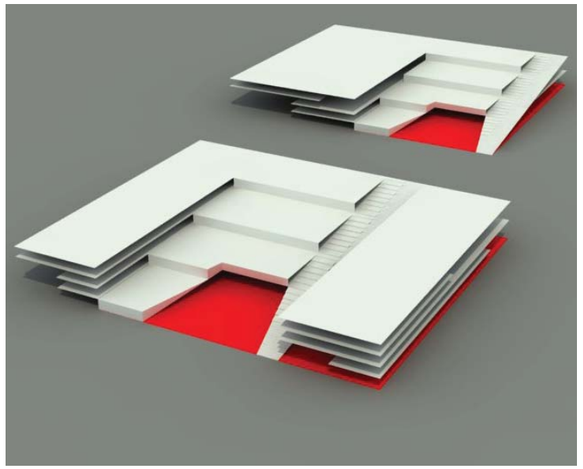
Further study regarding the program and design of the gallery should be done during the next phase, once the exhibit designer is chosen.

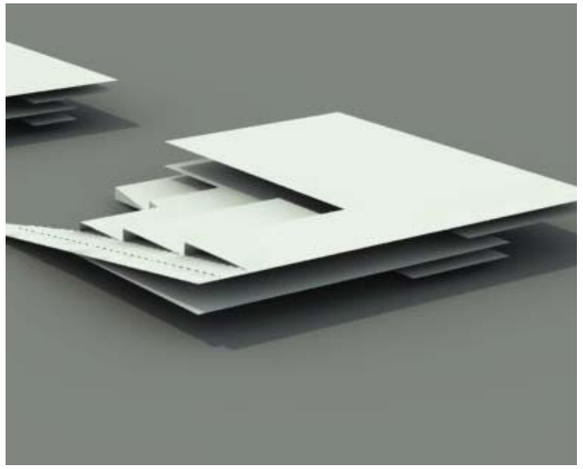
8 Pre - Design











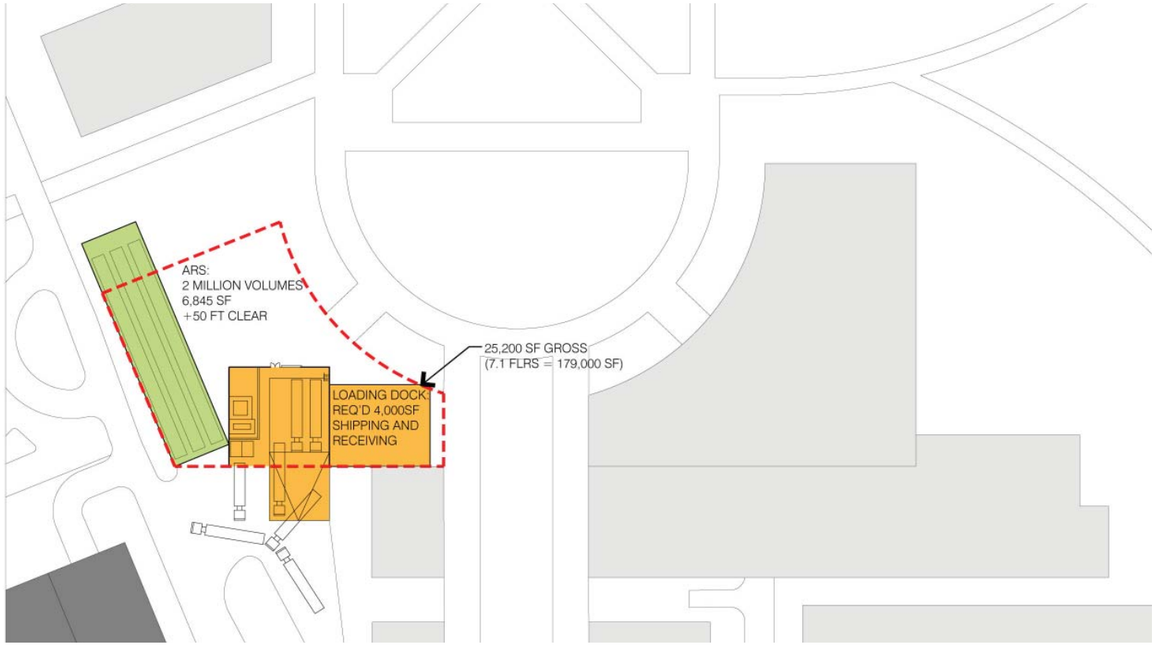
Massing

A quick study was done to test ways of creating clarity with such a wide variety of function and space as this building has.

Terraces in a large space offer the user a quick overview and visibility, the ability to see where to go or to find a colleague or available seat. Similar spaces can be located in the same place on each level, for example individual study rooms being tucked under the terraces. Light courts inserted into a wide volume offer daylight and the opportunity to create outdoor environments of different characters. Spaces with a wide variety of scale and size can be organized in a rational manner, creating a sense of calm and security.

Again, this is just one example of an overall spatial organization and many other possibilities remain to be tested in the coming phase.

PROGRAM SCALE STUDY: EXPANDED WEST SITE - +339' - LOADING DOCK & ARS



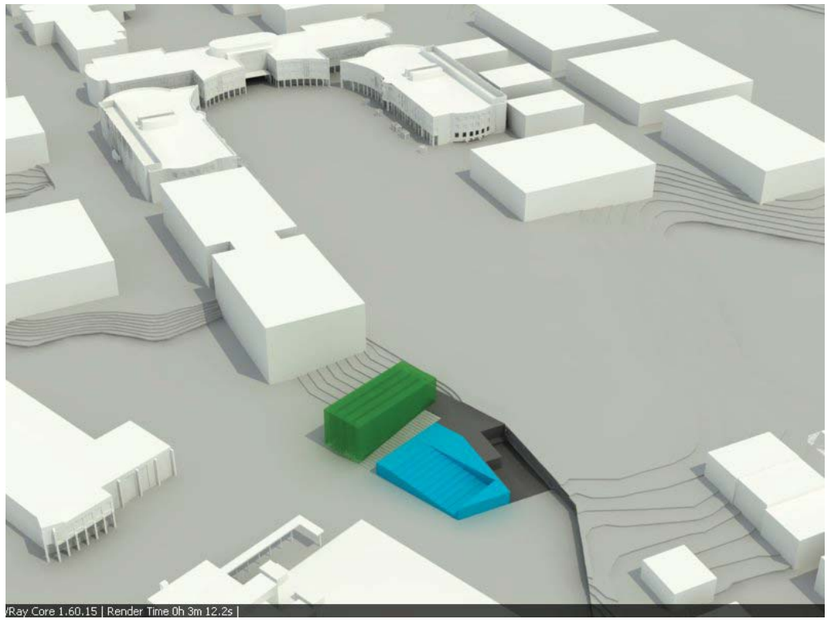
PROGRAM SCALE STUDY: EXPANDED WEST SITE - +355' - READING ROOM

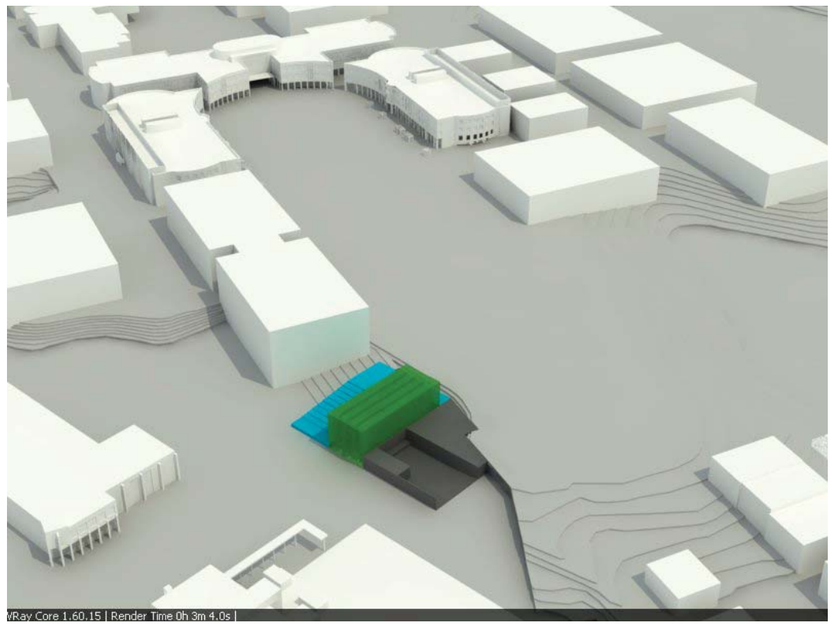
Massing

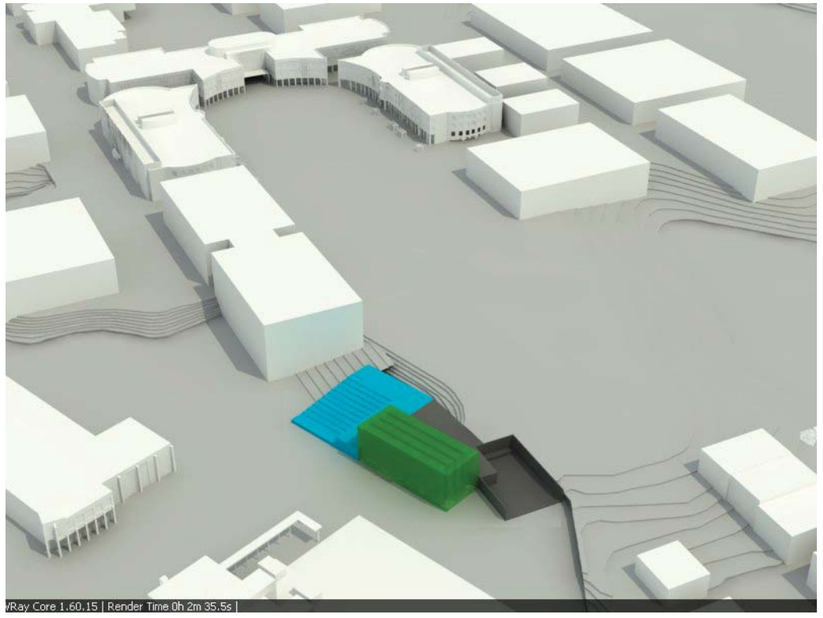
To begin to understand the size of the site relative to the size of the program a quick overlay was done with three different spaces: the ARS, a three bay loading dock, and the footprint of the existing Learning Commons at D.H. Hill Library.

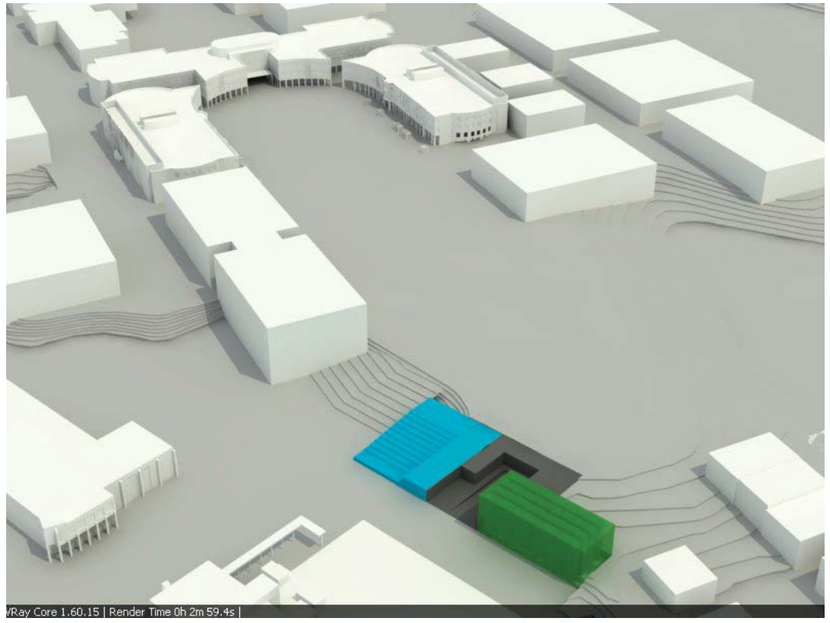
The Learning Commons is a space that many are familiar with and as such can easily gain an understanding of the area available on the Southwest corner of Centennial Campus.
If the Learning Commons of the new Hunt Library is to be designed as one continuous floor level one can easily see that the area as per the Master Plan should be expanded to also accommodate its necessary adjacent functions and circulaton.

Likewise, the ARS is of a certain size and requires specific relationships of its service points to collections services. With the ARS and the loading dock being on the same level little room is left over for such things as the 400 seat raked auditorium. While this site is an excellent choice for locating the Hunt Library its footprint will need to go beyond the proposed boundaries.









8 Pre - Design

Massing

The complex program for the Hunt building describes many spaces of varying size, with long spans and high ceilings placed next to small intimate spaces. The ARS is certainly the largest single program item in the building. There are few options for the location of this large, window free rectangular form on this chosen site. The location of the three bay loading dock relative to the functions it serves and the service roads in the area is also key to a successful functional diagram for the building. A 400 seat auditorium requires a certain width, length and height in order to serve its purpose, and therefore also requires careful placement on site.
In order to gain a full understanding of the major program elements relative to their location on the Centennial Oval the three largest and least flexible objects were placed in various locations.

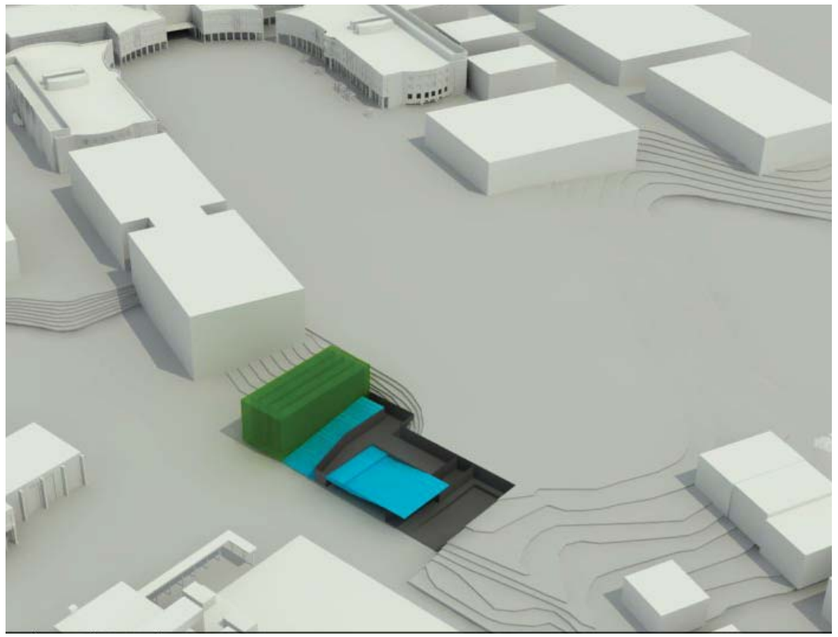
Option 1
For this exercise the ARS has as working dimensions W51' x L134' x H 60' and is located at the northern end of the building facing an outdoor path which connects the lower area of the campus with the Oval. To the south and adjacent to each other are the auditorium and loading dock. In this arrangement the loading dock is easily reached from the service road. The ARS is oriented with its narrow facade toward the open green of the Oval and the mall in front of the Textiles building. The auditorium potenitally has ingress and egress on both the upper and lower levels, the lower level egressing directly outside.

Option 2
In this arrangement the auditorium is placed on the north side and its rake effectivley mirrors the grade change between these two parts of campus. The loading dock has the same access from the service road and potentially more room adjacent to it for its adjacent functions. This places the ARS central in the building, possibly neccessitating circulation around all sides.

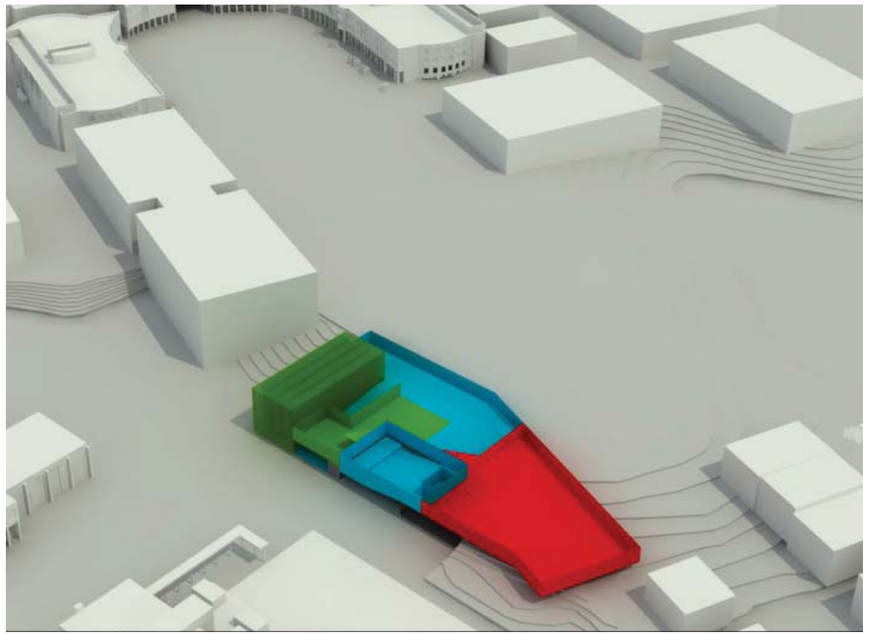
Option 3
Again, the auditorium is placed on the north side but the ARS is rotated along the North/South axis. The loading dock is easily reached from the service road. The bulk of the ARS is removed from the Oval, which may be considered as more representational than the lower side, and faces in part a parking structure.

Option 4
In this arrangement the auditorium has the same postion on the north side. The ARS has the same orientation but is pushed further south. The loading is still accessible from the service road but is rotated 90 degrees. This may be awkward for manuevering trucks, but is centrally located in the building within short distance of its related functions.

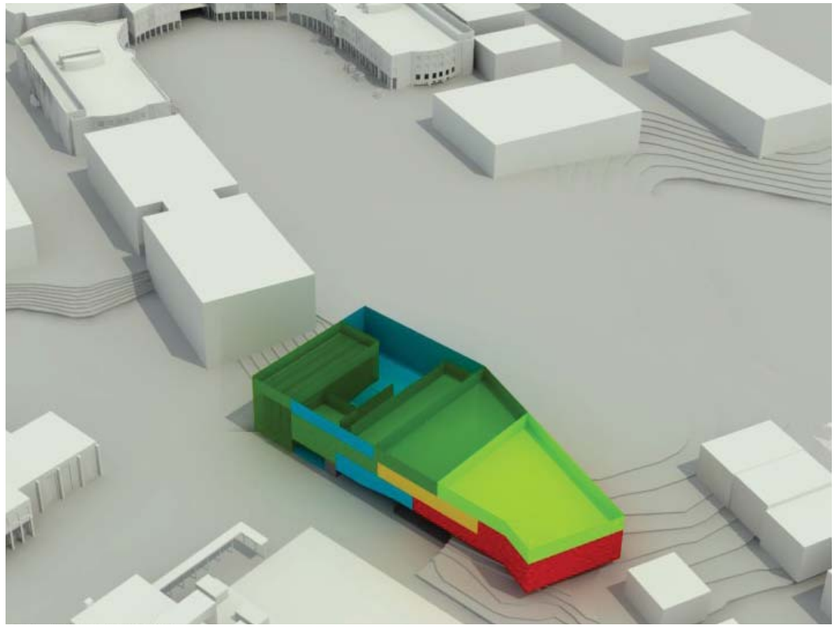
In all cases the ARS, which must sit on grade is located at the lower elevation in order to diminish its overall height as seen from the higher elevation. Its size must be verified.



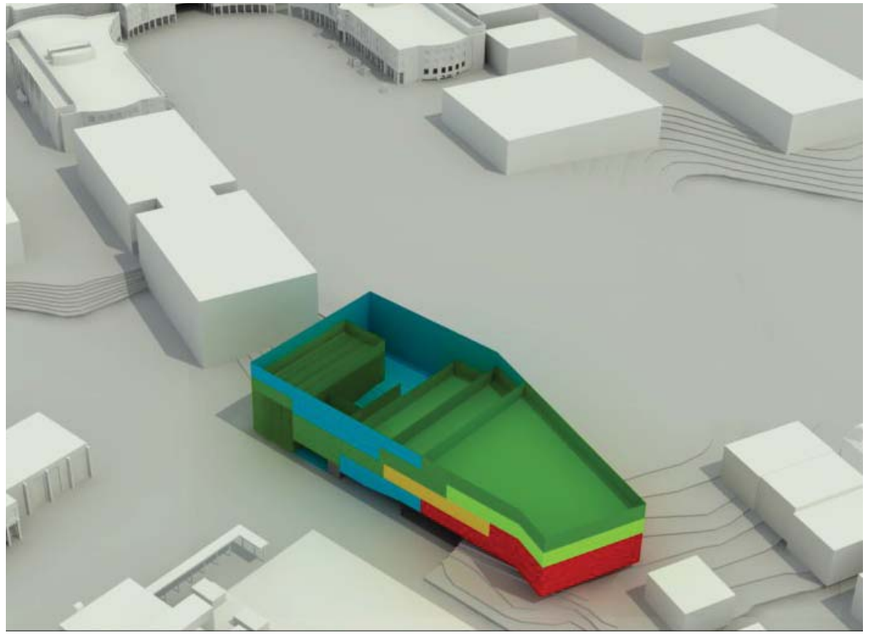
ARS, Auditorium, Loading Dock



Main Lobbies, Hunt Gallery, Library Entrance Level Added



Chancellor's Spaces, IEI staff offices and Library User and Staff Space Added

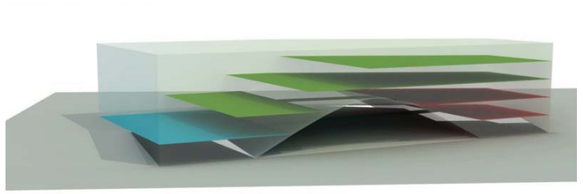


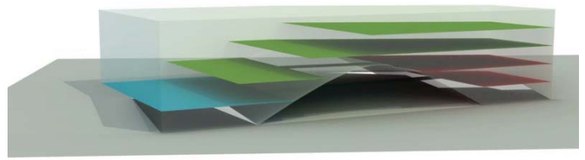
Rest of Library User Space and Library Staff space added

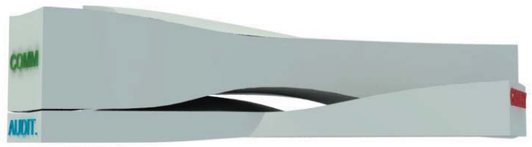
Massing

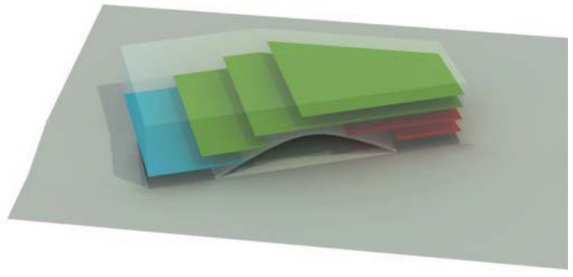
Once the location of the largest elements, the ARS, loading dock and auditorium has been determined with a degree of certainty it is necessary to test this with the rest of the program. This type of exercise will be carried out in more depth during Schematic Design, but during the Pre-Design phase it gives a good indication of size and scale on site. The colors used in these diagrams reflect the colors for the various groups used throughout the room program. As noted on previous pages in this section the building's volume extends south and occupies part of the area planned for the Town Center. This helps give the library a presence on this part of the Master Plan, and also helps keep the number of floors in the building to a minimum.

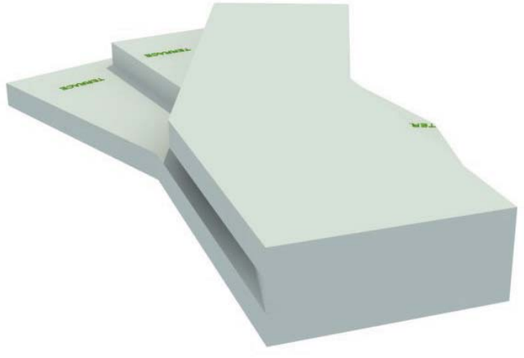
These studies represent only a minimum of massing considerations and do not reflect an architectural solution. They do however begin to show the result of considering a relatively compact planning basis limited to a single site choice.

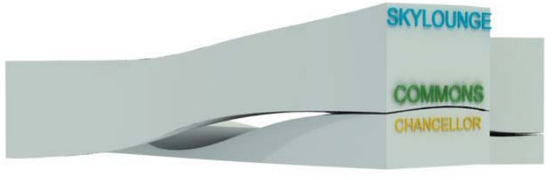


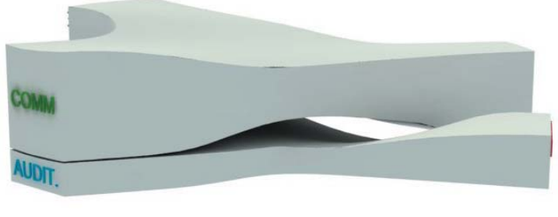












8 Pre - Design

Conclusions

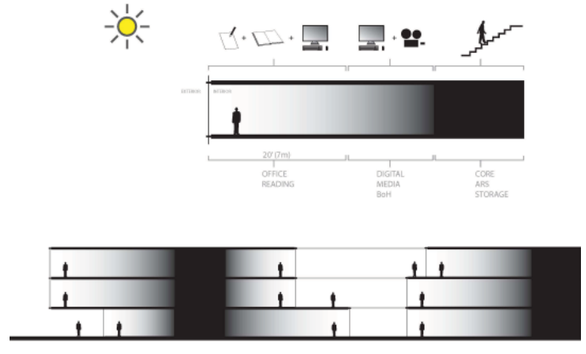
The term conclusion is somewhat misleading in that the end of Pre-Design is essentially the beginning of Schematic Design. While this phase is not meant to conclude with a definitive buildng design, parameters and criteria have been established which will be tested in greater depth durning Schematic Design.

The diagrams illustrated here are not meant to suggest design solutions, but they represent a beginning of design studies which will continue in greater depth during the coming phase.

During the course of design some of the initial assumptions made during Programming and Pre-Design may be changed as we test their viability, while most others will likely be reinforced.

Future solutions should consider the following:

- Early implementation of integrated sustainable design strategies.
- Outdoor terraces, both within and outside of the library boundary.
- Visibility to the Oval and College of Textiles
- Dynamic interior spaces.
- Roof form.
- Good orientation and access
- Connection to surrounding future structures.
- Climate responsiveness for a North / South site.
- Location of key elements such as the ARS, Hunt Gallery, auditorium and Sky Lounge.



“NCSU should be leading the way in sustainability and it should be visible in its physical expression”

9 Sustainability

a. What is sustainability?
b. LEED vs. Senate Bill 668
c. Climate Analysis
d. Sustainable Strategies
    Daylighting and Views
    Materials
    Water
    Ecology
    Landscape
    Energy
e. Case Studies

“Display of real-time energy usage so building occupants can actively monitor and make behavioral changes if possible.”

WHAT IS SUSTAINABILITY?

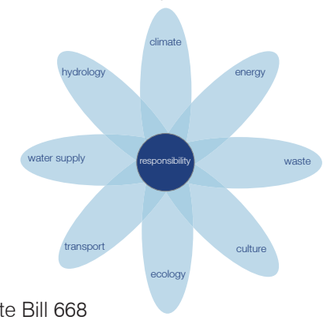
"Development that meets the needs of the present without compromising the ability of future generations to meet their own needs." *Bruntland Report 1987*

Buildings should be designed in an environmentally responsible way, optimizing passive strategies first and then looking at a high performance building envelope, energy efficient HVAC and lighting systems and controls. Building massing and orientation should be optimized and are the fundamental basis of the design. The sustainability concept should further be enhanced by integrating design strategies that embrace water and resource conservation and provide the best indoor environmental quality possible. Protecting the outside environment by maintaining air quality, water, land, other natural resources is a priority. Throughout construction and operation, human impacts on local, regional and global ecosystems must be minimized through conservancy, reduced pollution, increased efficiency and protection of native species.

WHAT MAKES A SUSTAINABLE BUILDING?

The Hunt Library will integrate appropriate sustainable design strategies that are sensitive to local resource constraints and available infrastructure. The following goals are an idealistic set of targets to which the library can aspire over time.

- Hydrology: Restore and maintain natural flows
- Climate: Carbon neutrality; Zero particulates, VOCs, etc.
- Ecology: Restore or re-establish wildlife habitat
- Energy: Independence from grid and 100% renewables
- Water: Zero potable water use
- Culture: Instill green values on impressionable minds
- Waste: Closed material loops; zero waste
- Transport: Zero emissions from transport



DRIVERS

Hard Drivers

1) North Carolina Senate Bill 668
- LEED NC Silver certification required
- 30% energy efficiency below ASHRAE 90.1-2004
- 20% potable water reduction below baseline
- 50% water reduction of outdoor potable water or harvested groundwater over baseline
- Other requirements: commissioning, metering, occupancy sensors, low flow fixtures, e-star rated appliances and office equipment, post construction M&V, local products and manufacturers

2) Economically Rational Paybacks
- Cost savings associated with energy efficiencies that pay for additional investment
- Reduced demand on grid that generates subsidies from local utilities
- Reduced potable water consumption savings that pay for impending water consumption regulations
- Sensitivity to local drought issues; aniticipation of potential supply limits

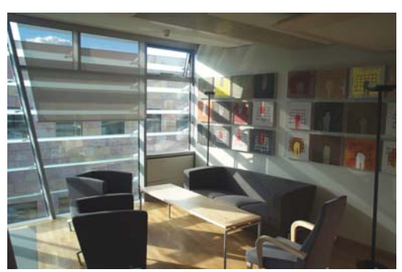
Soft Drivers

1) Quality of Life and Indoor Spaces
- High indoor quality from fresh air, views and plants
- Natural daylight and views to outdoors improve alertness, attention span and retention
- Temperature and humidity control for books and records
- Insurances from potential future regulations

2) Campus Initiatives
- Water Conservation Challenge – A UNC-CH vs. NCS competition to conserve water.
- Institute for Emerging Issues - Issue for 2008 is Energy.
- WolfPack Environmental Student Association (WESA)
- Positive press for green design through media coverage

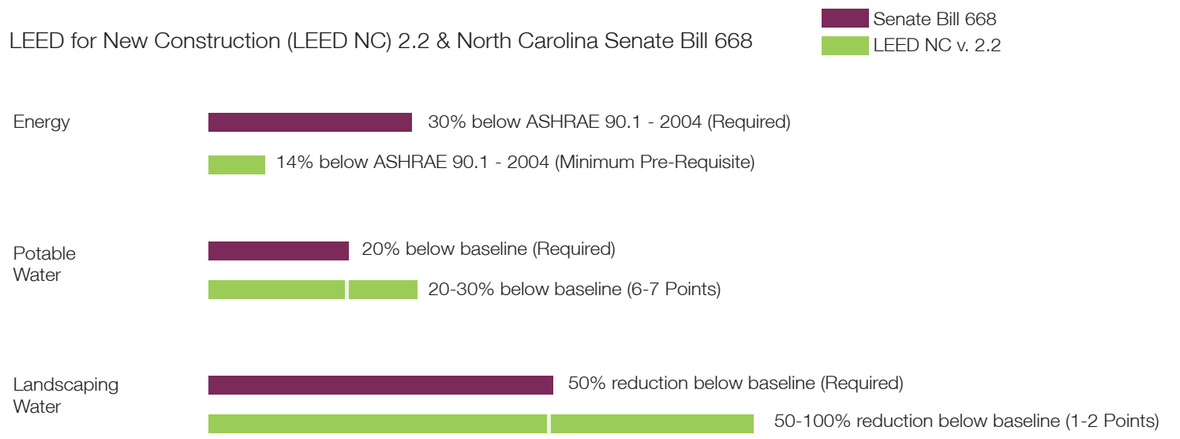
BENEFITS OF SUSTAINABILITY

- Reduce impacts of natural resource consumption
- Cost savings from water and energy use reduction
- Enhance occupant comfort and health
- Minimize strain on local infrastructures and improve quality of life
- Support local industries and economy



SENATE BILL 668 & LEED

LEED for New Construction (LEED NC) 2.2 & North Carolina Senate Bill 668



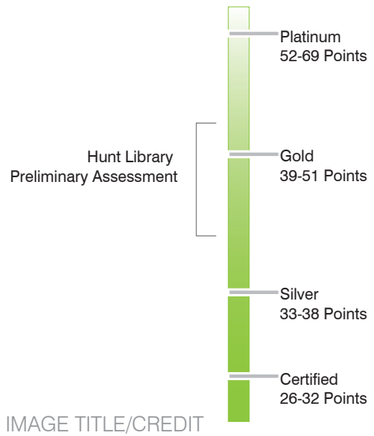


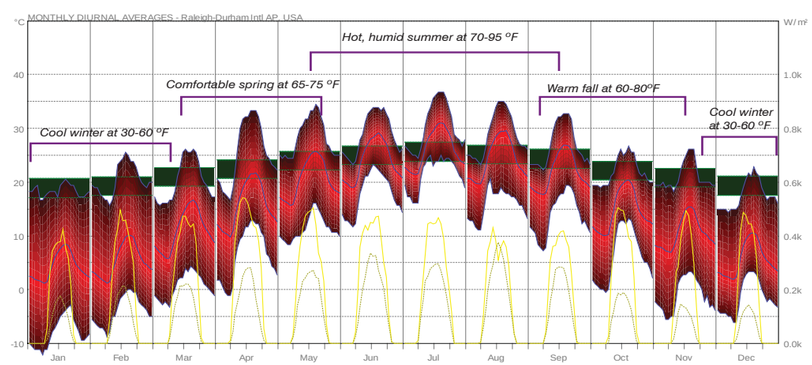
IMAGE TITLE/CREDIT

Because North Carolina Senate Bill 668 has such aggressive sustainability targets, the Hunt Library has great potential to achieve at a minimum, a Silver certification from the U.S. Green Building Council under the LEED for New Construction (LEED NC) program. While Senate Bill 668 and LEED NC share similar water and energy saving goals, Bill 668 also sets forward the following unquantifiable requirements:

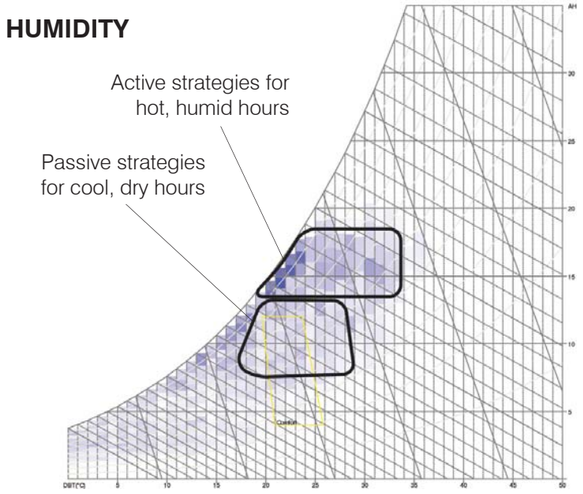
1. Measurement and verification costs and savings;
2. Use of North Carolina-based resources, materials, products, industries, manufacturers and businesses;
3. Building commissioning practices;
4. Building level owner's meters for electricity, natural gas, fuel oil and water;
5. Required post-occupancy evaluations;
6. High efficiency lighting systems;
7. Low flow sink and toilet fixtures; and
8. Life cycle cost analysis.

THERMAL ANALYSIS

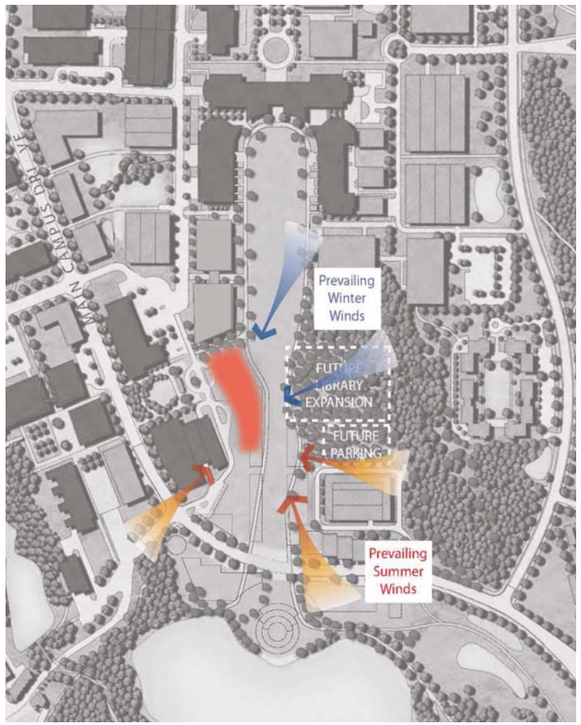
The climate type for NC according to the Koppen Classifications is humid subtropical climate with dry winters (by humid subtropical standards) and warm springs, followed immediately by a long, hot, rainy and humid summer. Heating loads and cooling loads are balanced in this moderate climate. The average annual temperature in Raleigh, NC is 60° F, with lows near 45°F in winter and highs near 90° F in summer. Raleigh receives an average of 3.8 inches of rain per year.



HUMIDITY



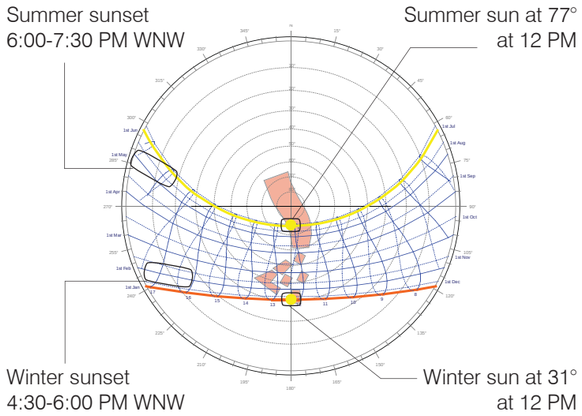
PREVAILING WINDS



The predominant wind direction in Raleigh, NC is from the south and east during the summer, with some breezes coming from the southwest. During the winter, the predominant winds come from the north and northeast. The average annual wind speed in Raleigh is 7.6 MPH. During the months of Jan-April, however, wind gusts reach an average speed of 8.7 MPH.

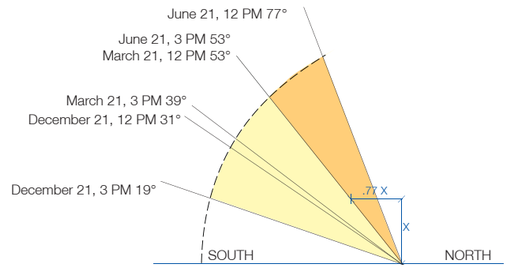
SOLAR EXPOSURE

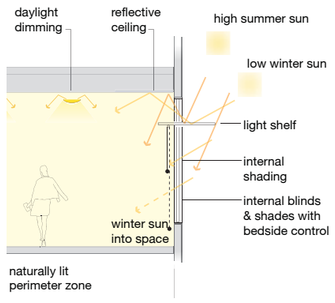
The sun path for the months of July and January have been highlighted to illustrate the sun path during peak summer and winter time periods. The Hunt Library should be oriented along the East/West axis so as to have optimal solar gain from the South.



SOLAR ANGLES

The high summer sun will require vertical shading on the southern facade of the library. The sun angles, shown below, dictate that a horizontal shading device such as a louvre or extended slab must be approx. 7/10 of the building height in length. The east and west sides of the building can protect from the low sun angles during winter and sunrise/sunset by using vertical shading devices.





DAYLIGHT AND VIEWS

The amount of daylight supplied to a space will be directly related to the use of that space. The stacks, for example, can be completely shaded whereas group study areas deserve plenty of warm sunshine. Below are proposed daylight and indoor air quality standards per use within the library:

Extensive research has shown that humans need at least two hours of natural light exposure daily to function normally, otherwise productivity and sense of well being can be compromised.

- Provide day lighting in common spaces and group study areas, but shade the sun in areas that do not require light such as computer areas, storage and stacks.
- Provide building occupants with views and a connection to the outside, preferable of natural settings.
- Minimize glare from natural light through blinds and curtains for individual and community spaces
- Optimize the building orientation so that south and north facing facades have superior access to daylight and views
- Integrate reflective materials and finishes on ceilings to distribute natural daylight deeper into the space when using light shelves.
- Provide glass partitions and low furniture systems when possible.

Space	Daylight	Air	Location
Book storage	None	Tight control	Interior / Basement
Stacks	Minimal/none	Tight control	Interior / Basement
Reading room/areas	Diffuse light	Possibility to open windows on nice day	North/East side
Study rooms	North	User controlled	North/East side
Circulation	Sunny, vibrant	Possibility to open windows on nice day	South/West side
Café	Sunny, vibrant	Possibility to open windows on nice day	South/West side


Atrium with vegetation & skylights


Light Shelves


Daylit study area


Daylit study area

MATERIALS

The negative environmental impact caused by the extraction, transport and use of materials in construction should be minimized and managed to the greatest extent possible.

- Minimize quantities of materials used, avoid the use of scarce materials and use local materials
- Use recycled-content and recyclable materials
- Recycle 90% waste generated from construction
- Choose adhesive and sealants release very low levels VOCs and that meet the Green Seal Standard
- Ensure that carpets meet the requirements of the Carpet and Rug Institute Green Label Plus Program
- Coatings, sealants and finishes should comply with the South Coast Air Quality Management District
- Avoid composite wood that has urea-formaldehyde
- Furniture should not contain formaldehyde or VOCs
- Use sustainably harvested wood that is FSC certified

FSC certified wood


Low VOC paints and carpet tiles

WATER

The design should be sensitive to the drought that North Carolina is currently experiencing. Landscaping and building water demands should be met with as little potable water as possible.

- Reduce demand of potable water
- Employ low flow fixtures for sinks, low flush toilets and waterless urinals to reduce potable and non-potable water demand
- Select drought tolerant and natives plant species that require little maintenance and no irrigation. This plant selection is called xericscaping.


Dual flush toilet


Xeriscaping

ECOLOGY

The Hunt Library should aim to protect threatened species, create habitats for existing species and encourage the growth of new, non-invasive species. Most importantly, it's ecological priority should be to fight the Kudzu!

- Protect and create habitats for species of conservation interest.
- Enhance local micro climate through intelligent planting and use of indigenous and regional plants that are adapted to local conditions and are low maintenance
- Apply a base coat of native grasses that serve to support life while controlling erosion and providing natural mulch
- Replace removed native top soils during final grading to best suit native species
- Develop a plan to combat invasive plant species like Kudzu that will degrade the potential for habitat restoration.

Wake County: List of Endangered, Threatened and Federal Species of Concern, and Candidate Species

Vertebrates:
American eel
Bachman's sparrow
Bald eagle
Carolina darter
Carolina madtom
Pinewoods shiner
Red-cockaded woodpecker
Roanoke bass
Southeastern myotis
Southern hognose snake

Invertebrates:
Atlantic pigtoe
Diana fritillary (butterfly)
Dwarf wedgemussel
Green floater
Yellow lance

Vascular Plants:
Bog spicebush
Grassleaf arrowhead
Michaux's sumac
Sweet pinesap
Virginia least trillium

Natural habitats

Native Meadow

LANDSCAPE

- Use existing and new green spaces for stormwater attenuation and treatment.
- Consider an intensive green roof, with soil depth of 6" – 10" that allows for a diverse planting palette and promotes habitats for birds and other small species.
- Consider native meadow grasses rather than turf grass. Native grasses require minimal maintenance and irrigation and provide habitat for insects and birds.
- Use non-native or ornamental vegetation sparingly
- Use high efficiency, drip irrigation, or no irrigation at all.
- Minimize the amount of potable water used for irrigation through water reclamation.

ENERGY

The first step in developing an energy and carbon reduction strategy for the Hunt Library is to establishing a baseline model, or benchmark of energy use to which to compare. The energy consumption of a typical library is 80 kBTU/sf. This can be used to highlight design targets and analyze energy conservation measures (ECMs). As Senate Bill 668 requires a 30% reduction in energy consumption beyond ASHRAE 90.1-2004, the following strategies could form a high performance building with significant heating energy, cooling, domestic hot water and electrical energy consumption reductions. These exemplar design strategies combine sound passive and active solutions and would position the Hunt Library to achieve LEED Silver Certification, at a minimum

Fresh Air Ventilation

- Ventilation rates will be higher in some spaces than others due to the library program. Install sensors so that when occupancy is low in certain areas, mechanical cooling shuts off and natural ventilation is used.
- Consider operable windows as a natural ventilation strategy when external conditions permit it, such as in the fall and spring.
- Consider underfloor air distribution and sidewall displacement for improved air quality and energy savings.

Heating and Cooling

- There are limited opportunities for heating and cooling energy savings because the Hunt Library will connect to the campus central plant.
- Consider solar hot water panels on the roof to supply the hot water demand (bathrooms, cleaning, kitchen).
- Consider radiant heating and cooling

Facade

- When applied to ASHRAE 90.1-2004, passive techniques such as high performance building envelope, external shading, operable windows and adaptive design criteria provide an estimated energy savings of 23% and carbon savings of 16%.
- Consider at least 60% glazing on the south and west facades. U-values for walls and windows indicate how well a building conducts heat; these values should exceed the ASHRAE 90.1-2004 minimum requirements of 0.151 and 0.46, respectively.

Plug Loads

- The Hunt Library will have high plug loads due to the many IT installations. As plug loads are user driven, their energy consumption can be reduced with timers, occupancy sensors and peak-load shedding, which shuts off non-critical appliances during peak load periods
- Specify efficient appliances and provide levels of controllably into the systems
- Educate students and staff about user behavior as awareness and education is the best way to reduce plug loads.

ENERGY (continued)

Lighting

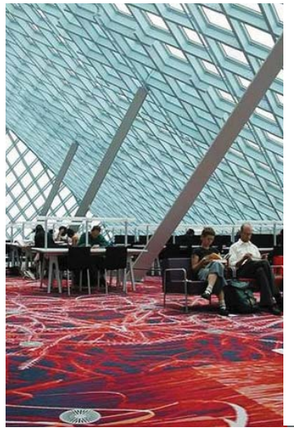
- Focus lighting where it is needed, such as in common areas, the lobby, meeting rooms and group study spaces. Avoid providing light, or rely on natural light, for less critical spaces such as stacks, storage and individual desks.
- The ASHRAE 90.1-2004 library installed lighting power density requirement is 1.3 w/sf. Meeting this allowance while achieving desired light levels is difficult, so strategies such as daylight dimmers, task lighting and uplighting are recommended.
- Passive design strategies include good orientation, optimization of the facade and inclusion of suitable solar shading techniques.

Renewables

- Wind turbines may be feasible from January to April, when wind speeds reach up to 8.8 MPH.
- Solar hot water panels on the roof could provide the hot water demand
- Ground source heat pumps may be considered

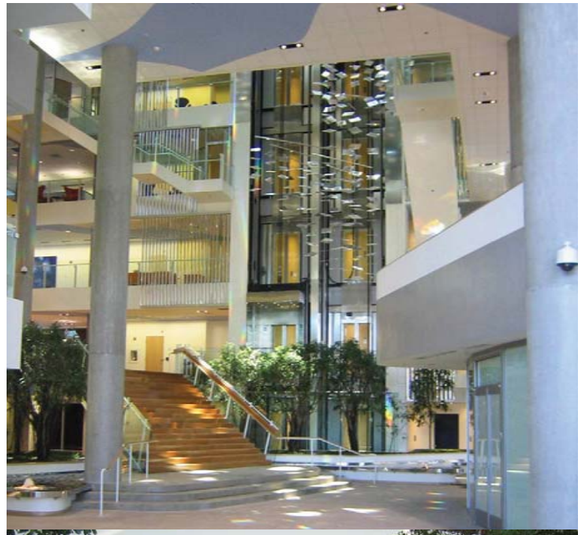
CASE STUDY: SEATTLE PUBLIC LIBRARY (SEATTLE, WA), LEED SILVER

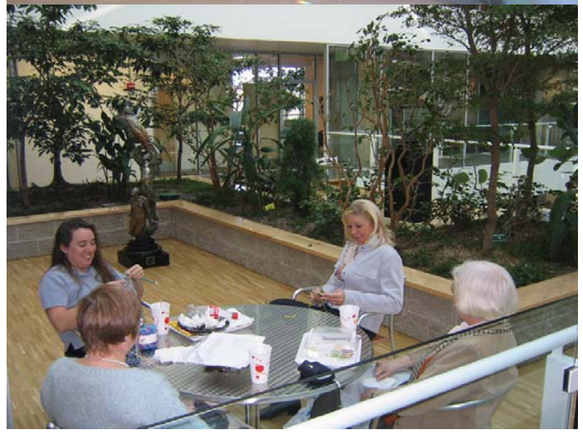
- Irrigation provided by rainwater collected from building exterior and stored in a 40,000-gallon tank
- Building outperforms Seattle energy code by 10%
- 50% of the glass used in the curtain wall is triple-glazed with an aluminum expanded metal mesh sandwiched between two panes to reduce heat buildup from sunlight
- Acoustics are designed to improve occupant comfort
- Public education component with tours focusing on LEED elements and signage pointing out sustainable features of the building
- Project was delivered on time and under budget

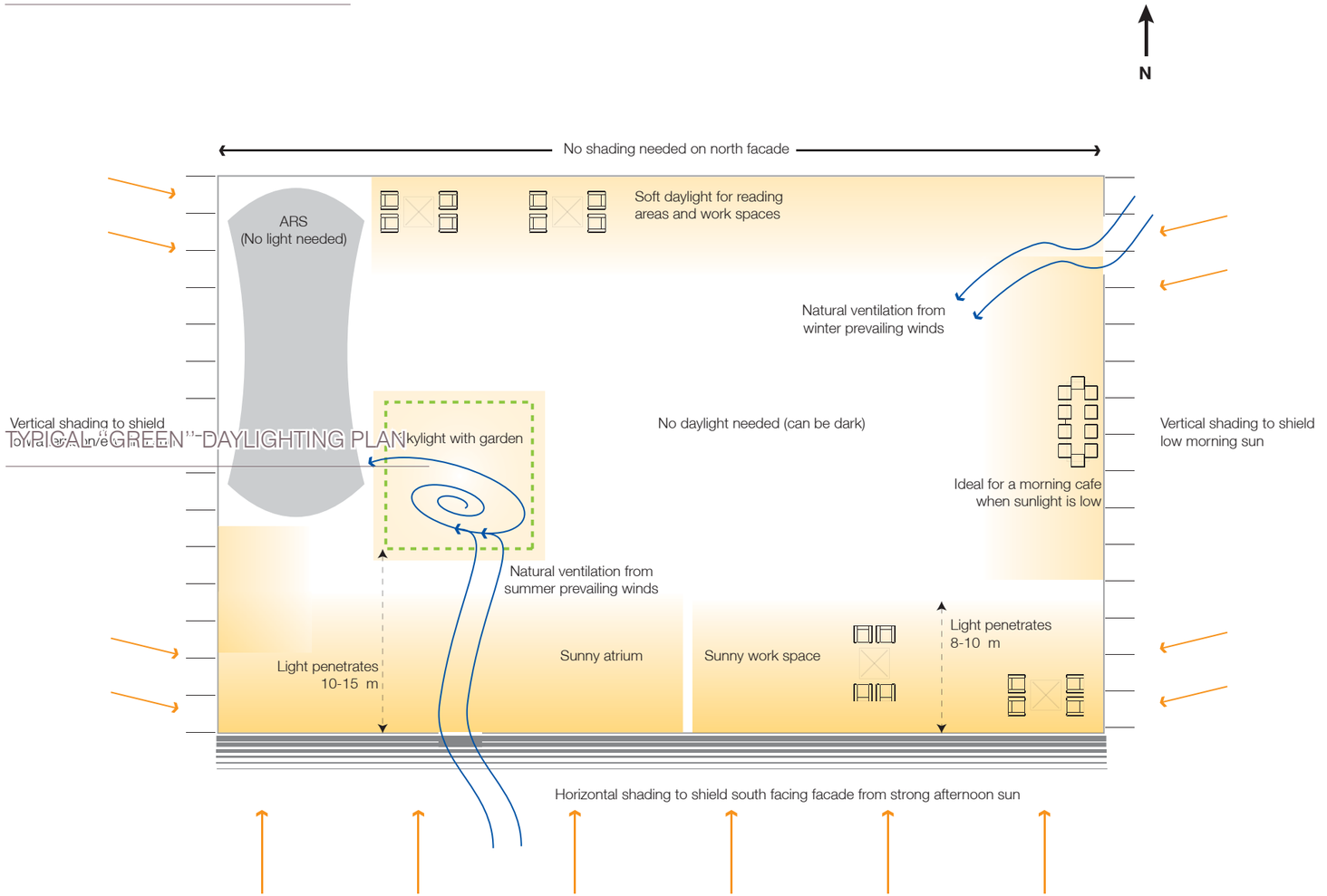


CASE STUDY: GENZYME CENTER (CAMBRIDGE, MA), LEED PLATINUM

- Indoor gardens with plants, sunlight, fountains and art exhibitions
- Passive heating/cooling contributing to an overall energy reduction of almost 40%
- Double skin façade on south and west façades, constituting 30% of building envelope
- Advanced day lighting and blind control system with heliostats in atrium
- Dual flush toilets and low flow fixtures, resulting in a 30% reduction of water use
- Steam absorption chillers, BMS linked lighting and FCUs and heat recovery AHUs







TYPICAL "GREEN" DAYLIGHTING PLAN

9 Sustainability

Daylighting Summary Points

- Use horoziontal shading on the south facing facade to protect spaces from overheating due to strong later morning and afternoon sun
- Use vertical shading on the east facade to prevent glare from early morning sun that enters the space at a low angle
- Use vertical shading on the west facade to prevent glare that results from low afternoon and setting sun
- No shading is necessary on the north facade and is, in fact, welcomed as soft daylight that is well suited from reading rooms and workspaces
- Allow natural ventilation along the south and east facades to harness the summer and winter prevailing winds, respectively
- Supply plenty of sunlight in group areas, whereas computer kiosks and individual study areas should be protected from glare-inducing, low angle sun
- Discourage natural daylight where it is not necessary, such as near the ARS and in other storage areas

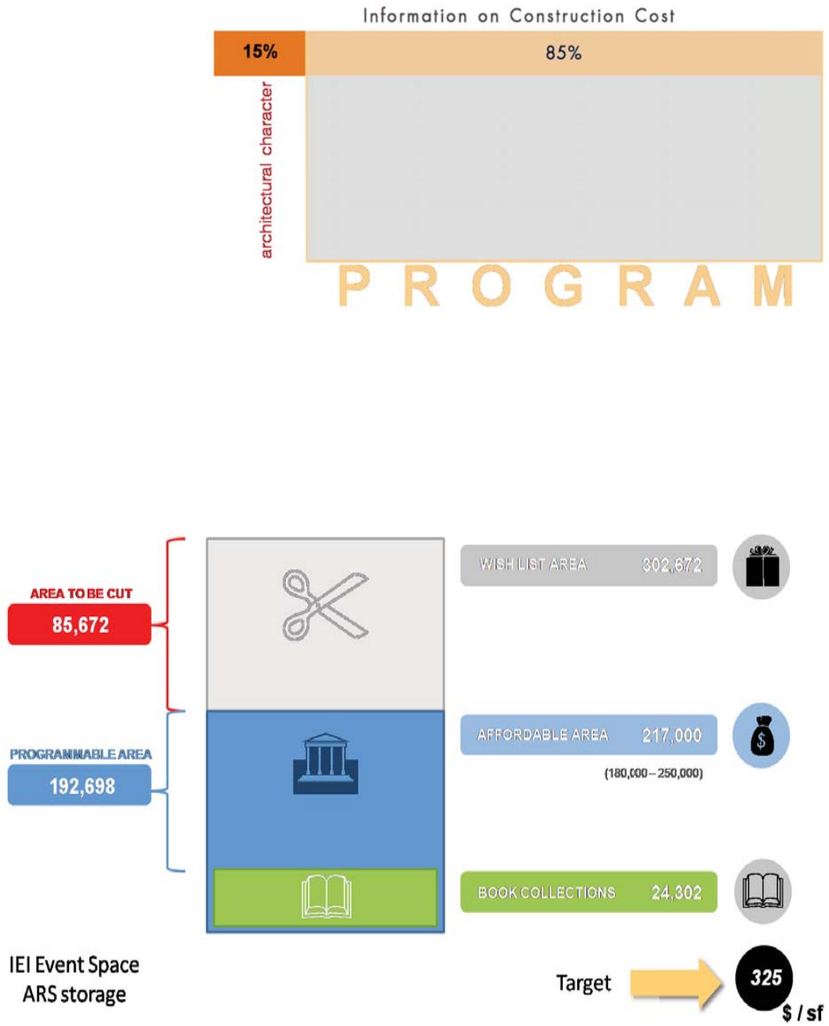
“It should be a symbol for NC State and North Carolina”

Workshop 1, January 2008

10 Cost Management

a. Introduction
b. Process
c. Conclusions

10 Cost Management



Introduction:

The primary objective of cost management during this phase is to ensure that the University's ambitions for the Hunt building are in alignment with the available funds and site options.

Our experience has shown that approximately 85% of a building's cost is the direct result of the the amount and quality of programmable space it contains.

Making the necessary adjustments to the room program to meet the available funds during programming and pre-design greatly diminishes the extent and type of 'Value Engineering' that may occur in the subsequent design phases.

Setting value to the amount of program the building will contain and the quality of program, in terms of level of finish or performance criteria and balancing this with the available funds for construction will establish reasonable design targets for the subsequent phases.

Process:

During this phase it was determined that the use of an Automated Retrieval System for the storage of Library volumes would occupy significantly less space than the same number of volumes in traditional open or compact shelving systems. The costs per volume of using an ARS is approximately one third that of volumes stored on open shelving.

It was necessary to reduce the intial room program, or 'wish list' by approximately 50% to approach alignment with the construction budget.

The full IEI Forum Event space was eliminated, greatly reducing the cost per square foot, as these spaces required a high level of performance and appearance.
The Library reduced its staff space and all users agreed to share common meeting rooms.

Soft costs were determined and reconciled with NCSU. Information on EBIII, located on the Centennial Oval was shared with Davis Langdon by the contractor Skanska in order to further refine the cost model based on local expertise.

The project budget for the James B. Hunt Jr. project, including the library, IEI and Chancellor's Rooms, site preparation, external finish works, utility expansion, and a parking deck, is $126,000,000, excluding future expansion.
The budget set aside by the university for the utility expansion project is $9,800,000. An estimated budget of $8.5 million is being allowed for the parking deck. Therefore, the remaining ca.$107,700,000 is available for the Hunt Library building and associated sitework project costs, inclusive of both construction and soft costs.

Net to Gross: the ratio of 65% has been used for this phase.

Conclusions:

NCSU is currently targeting $325 as a blended square foot cost for the building, including site preparation and external finish works. This reflects a construction budget of $70.5 million and a total size of 217,000 gross square feet. Our analysis of the program, ambitions for the project, and comparable projects in the area, as well as comparable buildings at other universities nationwide, would suggest a recommended target construction budget of approximately $76.7 million (TBD) – of which approximately $2.9 million be set aside for site preparation and external finish works, and the remaining be allotted to the building's construction, which would equate to a square foot cost of approximately $355/sf for a building size of 207,823 GSF . It should be noted that this target construction cost is based on the costs of the Automated Retrieval System being included within the soft cost portion of the budget.

The task of reconciling these two viewpoints, with the goal of ultimately designing to a project budget deemed acceptable, is the next challenge as design progresses into future stages. Many of the costs outlined to date are still of a very programmatic nature and are inherent of a design that has not yet taken tangible shape. The first steps will be to establish parameters and a hierarchy of priorities, then assess how this begins to influence the design from a cost standpoint and foresee any impacts to project budgets. Davis Langdon will continue to have a strong hold on all programmatic, design, and construction cost drivers, and they will be able to react and advise rather quickly on any new developments.

see full cost model in appendix iii

“This is not your grandparents’ library.”

NASA

11 Next Steps

a. Program
b. Cost
c. Design

“The library of the future opens today....the library of the future is here!.”

11 Next Steps

Key issues to focus on as Schematic Design begins are as follows:

Program

- Refine staff workplace strategies, configurations and detailed space allocations.
- Define the detailed mix and distribution of user seating and maximize to exceed the minimum target.
- Develop Learning Space concepts and understand their spatia, technological, and pedagogical implications.
- Develop detailed adjacency needs and solutions.
- Advance library planning concepts for services, user space, staffing and collections.
- Refine program strategies within the campus context, utilizing a learning landscape approach.
- Resolve the logistics of food service within the building.
- Resolve security and circulation patterns between buildng zones, including the location of the Sky Lounge.

Cost

- Verify / revise parameters used for this initial cost model.
- Reconcile cost / square foot.
- Cost Estimates will evolve in parallel with the development of the building design and be delivered at the end of each phase.

Design

- Define and integrate sustainable design strategies from the earliest stages of design
- Develop functional relationships into a cohesive whole.
- Finalize all site boundaries.
- Finalize future phasing parameters.
- Develop the building's relationship to its landscape and resolve its relationship to the Centennial Master Plan.

12 Appendix

a. Room List
b. Cost Report
c. LEED Checklist
d. Full List of Participants
e. IEI Forum Observations
f. NCSU Collections Estimates and Growth Projections

NCSU James B. Hunt Jr Library
Programming & Predesign Study
Space Program of Proposed Facilities
Final Program 10/17/08

Scenario 6
Refined Program

		Existing	*Area*	*% NSF*	*Notes and Assumptions*
	ASSUMPTIONS				
	IEI Space to include staff space, public meeting space, gallery and access to shared 400pp auditorium				
	Library Collections to include 47.5K vols open shelves and 2M vols in Automated Retrieval System				
1	PUBLIC/ COMMUNITY SPACES				
			12,805	**9.2%**	*Common spaces for building as a whole, including entry/lobby*
2	HUNT COMMONS & USER SPACES				
			47,460	**34.0%**	*Library user space for individual and group work, and related service/support*
3	LEARNING/COLLABORATION SPACES				
			5,450	**3.9%**	*Specialized and more formal learning spaces (a subset of user spaces)*
4	LIBRARY STAFF SPACE				
			21,439	**15.4%**	*Workplace of Hunt Library staff & administration*
5	COLLECTIONS				
			13,606	**9.8%**	*Library collections (ARS unit is not counted in net-to-gross calculation)*
6	INSTITUTE FOR EMERGING ISSUES				
	IEI Staff Space Workspace		6,664	4.8%	*IEI workplace*
	IEI Meeting and Event Spaces		17,250	12.4%	*Public/mtg spaces*
	Total IEI Net Area (NSF)		**23,914**	**17.2%**	
7	CHANCELLOR'S SPACES				
			6,769	**4.9%**	*Flexible incubator-type space for programs affiliated with CHASS*
8	BUILDING SUPPORT				
	General Building Support Spaces		1,072	0.8%	*General building suppon*
	Library Operations and Building Suppon		6,890	4.9%	*Library-specific building suppon*
	Total Building Support Net Area (NSF)		**7,962**	**5.7%**	
	TOTALS				
	Total Building Net Assignable Area (NASF)		**135,813**		*Net Assignable Area*
	Total Building Net Usable Area (NSF)		**139,405**	**100.0%**	*Includes circulation factors*
	Total Building Gross Area assuming N:G at 65% *(gsf)*		***207,353***		*Gross Square Feet*

NCSU James B. Hunt Jr Library
Programming & Predesign Study

Outline Space Program of Proposed Facilities

Proposed Program v5 10/17/08

		Use Code	Capacity Occup.	nasf / Occup.	nasf / Space	No. of Spaces	Total Seats	Total nasf	Notes (red=to be reviewed)
1 PUBLIC/ COMMUNITY SPACES									
1.1 Entry Zone									*Public/Community Spaces lie outside library collections security envelope*
1.1.1	Building Lobby	W05	40	60	2,400	1	40	2,400	*Meet and greet area for visitors, a place for short-term work while waiting for others, a meeting place, and is contiguous with café seating (see below). Includes an area for talks and lectures. Assume seating occupies only a portion of area and remaining area is open.*
1.1.2	Lecture and Reception Area	W05	30	20	600	1	30	600	*Area off to side to receive visitors, informal talks, etc*
1.1.3	Lobby pre-function space	W05			1,800	1	0	1,800	*Pre-function space for auditorium, public meeting areas, and classrooms*
1.1.4	Centennial Campus exhibit				30	1		0	*Explains story of Centennial Campus, considered part of working lobby*
1.1.5	Showcase area for campus partners				30	1		0	*An alcove-like space to display and highlight research and other activities around Centennial Campus, considered part of working lobby*
1.1.6	Display zone				40	1		0	*Large electronic displays of NCSU research discoveries and applications, informative exhibits, etc. Poster display zone. Can be reprogrammed to be used for presentations, visualization demos, etc., considered part of working lobby*
	Subtotal- Entry Zone						70	**4,800**	
1.2 Auditorium		610	400	15	6,000	1	400	**6,000**	*Shared auditorium/lecture hall used for Library, IEI, and campus-wide events. Potential for use for centrally-scheduled classrooms to be investigated.*
1.3 Café									
1.3.1	Café service and associated storage	630/635			350	1		350	*Need to confirm sizing and storage requirements with type of food service to be provided; Assume limited counter seating and use of 40 seats within working lobby*
1.3.2	Vending	630			80	1		80	*In separate alcoves, one food vending area near café seating area; 24/7 access*
	Subtotal- Café							**430**	

NCSU James B. Hunt Jr Library
Programming & Predesign Study

Outline Space Program of Proposed Facilities — ***Proposed Program v5 10/17/08***

	Use Code	Capacity Occup.	nasf / Occup.	nasf / Space	No. of Spaces	Total Seats	Total nasf	Notes (red=to be reviewed)
1.4 Shower/Changing Rooms	X03	2	100	200	2		**400**	*In addition to outdoor bike storage, shower/changing facilties for bicyclists. One facility each for men and women. Facility compliant with LEED guideline, assuming 206 FTE staff and 363 FTE student visitors.*
1.5 Mothers' Room	X03			125	1		**125**	*Private room for new and expecting Mothers. To be located discretely but with building-wide access*
1.6 First Aid Room / Nurse's Station	830			150	1		**0**	*Assumes space is included within unisex restrooms adjacent to Lobby*
1.7 Wheelchair Storage	625			50	1		**50**	
1.8 Press conference space	610	50	20	1,000	1	50	**1,000**	*Assume media gather here when not in use, or other rooms. Assumes campus-wide use of room*
IEI Exhibit Area (see IEI below)								
Grand Total- Public/Community Spaces							**12,805**	
Exterior Spaces - *Not included in net square footage, listed for costing purposes*								
Bounded exterior space, e.g. courtyard		65	60	3,900	1	65	3,900	*Must be a secured outdoor space; includes power provision for use as a study space; consider "screened-in porch'*
Upper floor outdoor space, e.g. roof terrace		70	15	1,050	1	70	1,050	*Falls within collection security perimeter. Connected to Sky Lounge, assumes can accommodate half of Sky Lounge visitors*
Staff/IEI upper floor outdoor space, e.g. roof terrace		20	30	600	1	20	600	*Outdoor informal space for library staff and IEI*
Bicycle storage		1	12	12	30		360	*Outdoor bicycle storage for building occupants and visitors. Quantity of spaces compliant with LEED guideline, assuming 206 FTE staff and 363 FTE student visitors. Bike storage must be within 200 yards of a building entrance.*

NCSU James B. Hunt Jr Library
Programming & Predesign Study

Outline Space Program of Proposed Facilities

		Use Code	*Proposed Program v5 10/17/08* Capacity Occup.	nasf / Occup.	nasf / Space	No. of Spaces	Total Seats	Total nasf	Notes *(red=to be reviewed)*
2	**HUNT COMMONS & USER SPACES**								
2.1	**Entry Access Privileges Desk**	440			40	1		**40**	*A staffed desk for granting access privileges and public safety/collections monitoring adjacent to library entry*
2.2	**Central Service Point**								*A one-stop integrated service point for reference/circulation/technology/wayfinding assistance. Adjacent to ARS*
2.2.1	Library display zone				30	1		30	*way-finding within the building and the campus, monitors to find open workstations in commons and throughout building, shuttle bus tracking, etc.*
2.2.2	Security checkpoint/Entry privilege station	440	1	35	35	1	1	35	*Integrated with service desk stations*
2.2.3	Service desk stations	440	1	35	35	4	4	140	*Stations for library services*
2.2.4	Collections processing area	440			600	1		600	*Space adjacent to ARS for staff to work with collections processing*
2.2.5	Shared workspace for roving librarians	440	1	60	60	4	4	240	
2.2.6	Device check-out	440	1	35	35	1	1	35	
2.2.7	Device storage space	455			250	1		250	*Includes 125 linear ft of storage, 12-14 in deep, 6 shelves high; 20 linear ft of desk space; 50 sq ft for carts*
2.2.8	Self-check out stations	440			20	3		60	
	Subtotal- Primary Service Point/Entry Desk							**1,390**	
2.3	**Vending Area**	660			30	1		**30**	*Vending machines for convenient access to emergency office or tech supplies*
2.4	**Quiet Reading Room**	410	120	35	4,200	1	120	**4,200**	*A spacious reading room more geared for individual and quiet study with large work surfaces. Reduced to balance proportion with Learning Commons*

NCSU James B. Hunt Jr Library
Programming & Predesign Study

Outline Space Program of Proposed Facilities

Proposed Program v5 10/17/08

		Use Code	Capacity Occup.	nasf / Occup.	nasf / Space	No. of Spaces	Total Seats	Total nasf	Notes (red=to be reviewed)
2.5	**Learning Commons**								
2.5.1	Leisure reading area	430	1	45	45	32	32	1,440	*Casual seating areas associated with collection, assume 2:1 ratio of user space to distributed collections*
2.5.2	New periodicals/books display reading area	430	1	45	45	32	32	1,440	*Casual seating areas associated with collection, assume 2:1 ratio of user space to distributed collections*
2.5.3	Lounge seating	410	4	35	140	15	60	2,100	*cozy couch areas*
2.5.4	Individual work stations	410	1	30	30	80	80	2,400	
2.5.5	Visualization stations with several monitors (1-2 pp)	410	2	20	40	10	20	400	*up to 3-4 screens to compare information*
2.5.6	Collaborative work stations (4-6)	410	6	8	48	12	72	576	*flexible, casual work space (similar to GaTech East Commons corner space), seats 4-6*
2.5.7	Open group study areas (4-6 pp)	410	6	20	120	12	72	1,440	
2.5.8	Semi-private niches or banquettes (2-4 pp)	410	4	20	80	8	32	640	
2.5.9	Presentation practice rooms(6-8 pp)	680	8	25	200	3	24	600	*Enclosed, with cameras for recording practice sessions*
2.5.10	Gaming room (6-8 pp)	670	8	30	240	3	24	720	*Alcoves for gaming activities for 4-6 people, assumes 6 people, allocates extra space between display and seating to support kinesthetic gaming*
	Learning Commons "Open Area"						448	**11,756**	*(note: internal circulation factor remove as all of Commons open area is net area)*
2.5.11	Group study rooms - 2-4p	680	4	25	100	40	160	4,000	*configured as a "group work corridor" with a spectrum of outfitted technologies*
2.5.12	Group study rooms - 4-6p	680	6	25	150	24	144	3,600	
2.5.13	User storage lockers	455	4	1.5	6	75		450	*Assumes 300 lockers, stacked 4 high, 18"x18"*
	Subtotal- Enclosed Commons Spaces		315	45	14,175	1	304	**8,050**	*Net assignable square footage*
	Internal circulation (for enclosed spaces)							3,040	*Asssume circulation factor of 40%*
	Subtotal- Learning Commons						752	**22,846**	

NCSU James B. Hunt Jr Library
Programming & Predesign Study

Outline Space Program of Proposed Facilities

Proposed Program v5 10/17/08

		Use Code	Capacity Occup.	nasf / Occup.	nasf / Space	No. of Spaces	Total Seats	Total nasf	Notes (red=to be reviewed)
2.6	**Graduate Commons**								*An enclosed study space for Graduate students with card access.*
2.6.1	Lounge seating	410	4	35	140	6	24	840	
2.6.2	Individual work stations	410	1	30	30	18	18	540	
2.6.3	Visualization stations with several monitors (1-2 pp)	410	2	20	40	8	16	320	
2.6.4	Collaborative work stations (4-6)	410	6	8	48	6	36	288	
2.6.5	Open group study areas/tables (4-6 pp)	410	6	20	120	6	36	720	
2.6.6	Semi-private niches or banquettes (2-4 pp)	410	4	20	80	6	24	480	
2.6.7	Group study rooms - 2-4p	680	4	25	100	4	16	400	
2.6.8	Group study rooms - 4-6p	680	6	25	150	4	24	600	
2.6.9	User storage lockers	455	4	1.5	6	30		180	*Assumes 120 lockers, stacked 4 high, 18"x18"*
	Subtotal- Graduate Commons						194	**4,368**	
2.7	**SkyLounge**	650	1	15	15	100	100	**1,500**	
2.8	**Hunt Room**	650	30	25	750	1	30	**750**	
2.9	**Quiet Distributed Reader Seating**								
2.9.1	Quiet reader seating	410	1	35	35	73	73	2,555	*inspiring, reflective, good views, natural light. Some in reading rooms, some distributed in stack areas.*
2.9.2	Lounge seating	410	1	35	35	30	30	1,050	
2.9.3	Napping chairs	410	1	35	35	5	5	175	*Metronap chairs?*
2.9.4	Distributed work tables	410	2	35	70	40	80	2,800	
	Subtotal- Distributed Reader Seating		1	35	35	350	188	**6,580**	
2.10	**Technology Hub Service Point**				100	1		100	*Service point supporting programs in Technology Hub*
2.11	**Digital Media Lab**								*Part of the Technology Hub*
2.11.1	Media work stations	220	1	30	30	15	15	450	
2.11.2	Tables for project creation/assembly	220	4	30	120	2	8	240	
2.11.3	Sharing spaces	220	6	25	150	2	12	300	*flexible zone where students from different schools can share and collaborate on their work*
2.11.4	Support space: printers, plotters, collation	225			90	1		90	*collating work countersadjacent to printers*
2.11.5	Media production studio space	220	4	50	200	2	8	400	
2.11.6	Curriculum Development Center	310	4	90	360	1	0	360	*Shared workspace for staff working with digital media, e.g. DELTA*
	Subtotal- Digital Media Lab (nasf)		40	45	1,800	1	43	**1,840**	*Net assignable square footage*
2.11.7	Internal circulation							552	*Assumes circulation factor of 30%*
	Subtotal- Digital Media Lab							**2,392**	

NCSU James B. Hunt Jr Library
Programming & Predesign Study

Outline Space Program of Proposed Facilities

Proposed Program v5 10/17/08

	Use Code	Capacity Occup.	nasf / Occup.	nasf / Space	No. of Spaces	Total Seats	Total nasf	Notes (red=to be reviewed)
2.12 Usability Lab	220			300	0	0	**0**	*Function managed through the clustering of group study rooms with interconnecting doors for computer interface interaction research*
2.13 Music/Recording Rooms	220	2	25	50	4	8	**200**	
2.14 Faculty Commons								*club-like atmosphere, welcoming drop-ins. Faculty version of the Commons with research support staff.*
2.14.1 Workstations	410	1	30	30	16	16	480	
2.14.2 Table seating	410	6	30	180	3	18	540	*with projection or displays, movable whiteboards*
2.14.3 Lockers	455	4	1.5	6	12		72	*Assumes 48 lockers, stacked 4 high, 18"x18", for those who move between campuses or classes*
2.14.4 Enclosed meeting rooms (8-10 pp)	680	10	25	250	1	10	250	
2.14.5 Focus booths for concentrated work	680	2	25	50	6	12	300	*Bookable on demand for short periods*
2.14.6 Shared/bookable work rooms for faculty	310	1	80	140	8	8	1,120	*bookable by semester for research work*
2.14.7 Lounge seating	410	1	16	16	12	12	192	
2.14.8 Kitchenette alcove	455			20	1		20	
2.14.9 Support: copier, printers, etc.	455			90	1		90	
Subtotal- Faculty Commons		50	35	1,750	1	76	**3,064**	
Grand Total- Hunt Commons & User Spaces						1481	**47,460**	

10/17/08 Final Program

NCSU James B. Hunt Jr Library
Programming & Predesign Study

Outline Space Program of Proposed Facilities

	Use Code	*Proposed Program v5 10/17/08* Capacity Occup.	nasf / Occup.	nasf / Space	No. of Spaces	Total Seats	Total nasf	Notes *(red=to be reviewed)*
3 LEARNING/COLLABORATION SPACES								
3.1 Learning Studio	210	54	30	1,620	1	54	**1,620**	*Part of the Learning Hub- collaborative active learning spaces, bookable not centrally scheduled. Spill-over spaces where users can watch events or presentations happening in other locations*
3.2 "Fishbowl" Classroom	210	20	20	400	1	20	**400**	*Part of the Learning Hub- a specially-equipped, glass-sided classroom that enables a high degree of visibility. Users of this space exchange the privilege of using a special facilitiy with a willingness to share and the visibility of their learning activities*
3.3 Training Room	210	30	45	1,350	1	30	**1,350**	*Part of the Learning Hub- a room can be subdivided into 2 to create pair of 15pp training rooms*
3.4 Seminar/Meeting Room	110	20	20	400	1	20	**400**	*Part of the Learning Hub-similar to "Fishbowl," but without specialized access or technology*
3.5 Visualization Studios	220							*Part of the Technology Hub- studios with multiple projection capability, AccessGrid type capability for engaging remote participants, working with complex data from multiple sources. In several model spaces at move-in; later systems become available in other meeting spaces as well. Assume movable seating, but no tables and chairs.*
3.5.1 Large Visualization Studio (30 pp)	220	30	20	600	1	30	600	
3.5.2 Small Visualization Studio (6 pp)	220	6	30	180	1	6	180	
Subtotal- Visualization Studios							**780**	
3.6 Technology Sandbox	250	24	38	900	1	24	**900**	*Part of the Technology Hub- a "technology incubator" space for students and faculty to play and experiment with out-of-reach technologies, potentially in partnership with vendors or industry partners*
Grand Total - Learning Spaces						264	**5,450**	*Note: These seats count toward user seating totals as these spaces are w/in the library*

NCSU James B. Hunt Jr Library
Programming & Predesign Study

Outline Space Program of Proposed Facilities

		Use Code	*Proposed Program v5 10/17/08* Capacity Occup.	nasf / Occup.	nasf / Space	No. of Spaces	Total Seats	Total nasf	Notes *(red=to be reviewed)*
4 LIBRARY STAFF SPACE									*Refer to Staffing Projections Sheet for Details and Assumptions based on 2020 Projections*
4.1 Hunt Library Administration									
4.1.1	Vice Provost/Director of Libraries	310	1	225	225	1	1	225	*Vice Provost/Director of Libraries and admin team remain at Hill, but keep one office at Hunt*
4.1.2	Hunt Library Director	310	1	225	225	1	1	225	*Enclosed workspace*
4.1.3	Hunt Library Associate Director	310	1	140	140	2	2	280	*Enclosed workspace*
4.1.4	Full Time Administrative Staff	310	1	140	140	2	2	280	*Enclosed workspace. Assume these are shared with DH Hill administrative team.*
4.1.5	Workstation for Full-Time Staff	310	1	90	90	2	2	180	*Open workspace*
4.1.6	Workstation for Part-Time Staff	310	1	90	90	1	1	90	*Open workspace*
4.1.7	Reception Area	315			120	1	4	120	*Assume waiting area for 4 people*
4.1.8	Storage	315			50	1		50	*Separate storage required for sensitive documents*
4.1.9	Resource center	315			92	1	0	92	*Separate resource center required based on location and security of sensitive documents*
	Subtotal- Hunt Library Administration							**1,542**	
4.2 Research and Collections Services									
4.2.1	Head	310	1	140	140	1	1	140	*Enclosed workspace*
4.2.2	Assistant Heads	310	1	140	140	2	2	280	*Enclosed workspace*
4.2.3	Workstations for Full-Time Staff	310	1	90	90	15	15	1,350	*Open workspace*
4.2.4	Shared Workstations for Part Time Staff	310	1	90	90	3	3	270	
	Subtotal- Research and Collections Services							**2,040**	
4.3 Access and Delivery Services									*Refer to Staffing Projections Sheet for Details and Assumptions based on 2020 Projections*
4.3.1	Head	310	1	140	140	1	1	140	*Enclosed workspace*
4.3.2	Assistant Heads	310	1	140	140	2	2	280	*Enclosed workspace*
4.3.3	Workstations for Full-Time Staff	310	1	90	90	19	19	1,710	*Open workspace*
4.3.4	Shared Workstations for Part Time Staff	310	1	90	90	0	0	0	*Will use shared processing space near ARS and collections staging*
	Subtotal- Information and Access Services							**2,130**	

NCSU James B. Hunt Jr Library
Programming & Predesign Study

Outline Space Program of Proposed Facilities

		Use Code	*Capacity Occup.*	*nasf / Occup.*	*nasf / Space*	*No. of Spaces*	*Total Seats*	*Total nasf*	*Notes (red=to be reviewed)*
			Proposed Program v5 10/17/08						
4.4	**Digital Library**								
4.4.1	Head	310	1	140	140	1	1	140	
4.4.2	Assistant Heads	310	1	140	140	2	2	280	
4.4.3	Workstations for Full-Time Staff	310	1	90	90	17	17	1,530	*Open workspace*
4.4.4	Shared Workstations for Part Time Staff	310	1	90	90	2	2	180	
	Subtotal- Digital Library							**2,130**	
4.5	**Information Technology**								
4.5.1	Head	310	1	140	140	1	1	140	
4.5.2	Assistant Heads	310	1	140	140	1	1	140	
4.5.3	Workstations for Full-Time Staff	310	1	90	90	7	7	630	*Open workspace*
4.5.4	Shared Workstations for Part Time Staff	310	1	90	90	2	2	180	
4.5.5	IT Equipment Setup and Staging Area	315	5	50	250	1	5	250	*Assumes shared, enclosed, secure space with increased space for equipment processing and set-up,upgrading, etc.*
	Subtotal- Information Technology							**1,340**	
4.6	**Technical Services**								*Assumes co-location of Acquisitions and Metadata & Cataloging groups*
4.6.1	Head	310	1	140	140	2	1	280	*Enclosed workspace*
4.6.2	Assistant Heads	310	1	140	140	5	5	700	*Enclosed workspace*
4.6.3	Workstations for Full-Time Staff	310	1	90	90	35	35	3,150	*Open workspace*
4.6.4	Shared Workstations for Part Time Staff	310	1	90	90	6	6	540	
4.6.5	Shelving	780			525	1	0	525	*Includes shelving space, staging space, and space for staff to pack/unpack books. Approximately half of space allocated for staging and other half for processing.*
4.6.6	Multimedia processing space	315			100	1	4	100	*Enclosed space to process multimedia, maps, video, etc.*
	Subtotal- Technical Services Staff Space							**5,295**	
	Technical Services Shared Workspace								
4.6.7	Distributed open work areas	315			72	0	0	0	*Work tables adjacent to workstations, assumes area can be counted within circulation*
	Subtotal- Technical Services Shared Workspace							**0**	
	Subtotal- Technical Services							**5,295**	

NCSU James B. Hunt Jr Library
Programming & Predesign Study

Outline Space Program of Proposed Facilities

Proposed Program v5 10/17/08

		Use Code	Capacity Occup.	nasf / Occup.	nasf / Space	No. of Spaces	Total Seats	Total nasf	Notes (red=to be reviewed)
4.7	**Library Conference Space**								
4.7.1	Focus booths	350	2	25	50	8	16	400	
4.7.2	Open meeting area (4 - 6 people)	350	6	25	150	8	48	1,200	*Seats 4-6 people within space, assumes 6, could be distributed among units*
4.7.3	Med Meeting Room (8-12 ppl)	350	12	25	300	4	48	1,200	*Seats 8-12 people within space, assumes 12, assume 50% w/ videoconf capabilities*
4.7.4	Large Meeting Room (20-25 ppl)	350	25	25	625	2	50	1,250	*Seats 20-25 people within space, assumes 20, assume 50% w/ videoconf capabilities*
	Subtotal- Library Conference Space						162	**4,050**	
4.8	**Library Common Workspace**								
4.8.1	Project team room	350	15	20	300	3	45	900	*Shared pool for all the units, used for project work, allows for pin-up, leaving of materials overnight; one to function as laboratory for library to develop and test new ideas & technologies*
4.8.2	Staff Lounge	315	24	25	600	1	24	600	*Includes kitchenette, eating space, and lounge seating*
4.8.3	Distributed lounge seating	315	6	16	96	3	18	288	*Distributed lounge seating for informal interaction*
4.8.4	Touch-down workstations	310	1	60	60	8	8	480	*Shared workspace, e.g. for library staff based at DH Hill or other collaborators*
4.8.5	Reception Area	315		160	1	8	160	*Assume waiting area for 8 people*	
4.8.6	Centralized storage	780		300	1		300		
4.8.7	Shared resource center	315		184	1		184		
	Subtotal- Library Common Workspace					58	**2,912**		
Totals									
	Library Staff Unit Total							14,477	
	Library Conference Space Total							4,050	
	Library Shared Space Total							2,912	
	Grand Total Library Staff Workspace							**21,439**	
	Net assignable area per staff member							155	*Based on 123 FT and 15 PT FTEs (matches NC State Standards)*
Comparison of Shared Spaces									
	Reference: Total support spaces							7,424	
	Reference: Shared Space Allocation per NCSU space standards							8,700	*Assumes 50 sq ft/person for conference office services. Conference services includes all support, collaborative, common, and internal circulation spaces*

NCSU James B. Hunt Jr Library
Programming & Predesign Study

Outline Space Program of Proposed Facilities

		Use Code	*Proposed Program v5 10/17/08* Capacity Occup.	nasf / Occup.	nasf / Space	No. of Spaces	Total Seats	Total nasf	Notes *(red=to be reviewed)*
6	**INSTITUTE FOR EMERGING ISSUES**								
6.1	**IEI Staff Space**								
6.1.1	Director	310	1	225	225	1	1	225	
6.1.2	Assistant Directors	310	1	140	140	3	3	420	
6.1.3	Office Manager		1	140	140	2	2	280	
6.1.4	Collaborative workstations	310	1	90	90	20	20	1,800	*Assumes open, collaborative workspace with enclosed adjacent support spaces*
6.1.5	Faculty fellow and graduate student workstations	310	1	90	90	15	15	1,350	*Shared workspaces for faculty fellows and graduate students, adjacent to permanent staff space*
6.1.6	Touch-down workstations	310	1	60	60	6	6	360	*Workspace for undergraduate interns, 4-6 at a time*
6.1.7	Reception Desk		1	120	120	1	1	120	
6.1.8	Storage	780	1	150	150	1	0	150	*A locked room, providing larger work area adjacent to workstations for hardware processing, upgrading, etc.*
6.1.9	Project team area	350			625	1	25	625	*Central, shared space that can accommodate all staff for collaborative research projects, staging area for mailing, and includes storage and display technology,flexible furnishings, whiteboards, tables,e.g. "war room." Can be an interior space*
6.1.10	Media production facility	530	5	30	150	1	5	150	*Studio environment for the processing and dissemination of IEI information and updating of exhibits*
6.1.11	Distributed open work areas	315			72	2	0	144	*Work tables adjacent to workstations*
6.1.12	Resource center	315			92	1	0	92	*Supplies, printers, copy/fax etc.*
6.1.13	Staff Lounge	315			180	1		180	*Includes kitchenette, eating space, and lounge seating*
6.1.14	Distributed lounge seating	315	6	16	96	1	6	96	*Distributed lounge seating for informal interaction*
6.1.15	Mail room	315			72	1	0	72	
	Subtotal- IEI Staff Space							**6,064**	
6.2	**IEI Staff Conference Space**								
6.2.1	Open meeting area (6-8ppl)	350	8	25	200	2	16	400	*Seats 6-8 people within space, one adjacent to project team room*
6.2.2	Focus booths	350	2	25	50	4	8	200	*Quiet space for individual or concentration*
	Subtotal- IEI Staff Conference Space						24	**600**	

NCSU James B. Hunt Jr Library
Programming & Predesign Study

Outline Space Program of Proposed Facilities

Proposed Program v5 10/17/08

		Use Code	Capacity Occup.	nasf / Occup.	nasf / Space	No. of Spaces	Total Seats	Total nasf	Notes (red=to be reviewed)
6	**INSTITUTE FOR EMERGING ISSUES**								
6.1	**IEI Staff Space**								
6.1.1	Director	310	1	225	225	1	1	225	
6.1.2	Assistant Directors	310	1	140	140	3	3	420	
6.1.3	Office Manager		1	140	140	2	2	280	
6.1.4	Collaborative workstations	310	1	90	90	20	20	1,800	*Assumes open, collaborative workspace with enclosed adjacent support spaces*
6.1.5	Faculty fellow and graduate student workstations	310	1	90	90	15	15	1,350	*Shared workspaces for faculty fellows and graduate students, adjacent to permanent staff space*
6.1.6	Touch-down workstations	310	1	60	60	6	6	360	*Workspace for undergraduate interns, 4-6 at a time*
6.1.7	Reception Desk		1	120	120	1	1	120	
6.1.8	Storage	780	1	150	150	1	0	150	*A locked room, providing larger work area adjacent to workstations for hardware processing, upgrading, etc.*
6.1.9	Project team area	350			625	1	25	625	*Central, shared space that can accommodate all staff for collaborative research projects, staging area for mailing, and includes storage and display technology,flexible furnishings, whiteboards, tables,e.g. "war room." Can be an interior space*
6.1.10	Media production facility	530	5	30	150	1	5	150	*Studio environment for the processing and dissemination of IEI information and updating of exhibits*
6.1.11	Distributed open work areas	315			72	2	0	144	*Work tables adjacent to workstations*
6.1.12	Resource center	315			92	1	0	92	*Supplies, printers, copy/fax etc.*
6.1.13	Staff Lounge	315			180	1		180	*Includes kitchenette, eating space, and lounge seating*
6.1.14	Distributed lounge seating	315	6	16	96	1	6	96	*Distributed lounge seating for informal interaction*
6.1.15	Mail room	315			72	1	0	72	
	Subtotal- IEI Staff Space							**6,064**	
6.2	**IEI Staff Conference Space**								
6.2.1	Open meeting area (6-8ppl)	350	8	25	200	2	16	400	*Seats 6-8 people within space, one adjacent to project team room*
6.2.2	Focus booths	350	2	25	50	4	8	200	*Quiet space for individual or concentration*
	Subtotal- IEI Staff Conference Space						24	**600**	

NCSU James B. Hunt Jr Library
Programming & Predesign Study

Outline Space Program of Proposed Facilities

Proposed Program v5 10/17/08

		Use Code	Capacity Occup.	nasf / Occup.	nasf / Space	No. of Spaces	Total Seats	Total nasf	Notes (red=to be reviewed)
	Total- IEI Staff Space							6,064	
	Total- IEI Staff Conference Space							600	
	Grand Total IEI Staff Workspace							**7,064**	*(Includes 50% of 6-8pp mtg rooms below)*
	NASF per IEI staff member							206	
	NASF per person							150	*Total workspace includes stations for faculty fellows and touch-down workstations. Based on 26 FT and 21 PT FTEs, allocation per NCSU standards =147 sq ft/FTE. Exact balance of indiv / collab space TBD.*
6.3	**IEI Meeting & Event Spaces**								*(non forum-specific spaces)*
6.3.1	Small group meeting room (6-8 ppl)	680	8	25	200	4	32	800	*Seats 6-8 people within space, Assume 2 rooms allocated for use in IEI staff space*
6.3.2	Executive-level conference room	680	45	30	1,350	1	45	1,350	*Assumes 30 people seated at table in addition to up to 15 staff members present, needs simultaneous access while Working Group in session, should be located closer to IEI staff space*
6.3.3	Lecture/event space 100 people	610	100	20	2,000	1	100	2,000	*Seats up to 100 people, sloped floor with stage for presentations, talks, etc.*
6.3.4	Multi-purpose space for up to 100 people	610	100	25	2,500	2	200	5,000	*For leadership retreat sessions (up to100), two adjacent (subdividable into 4 each) multi-purpose spaces that can be combined, used for a variety of activities, including registration,refreshments, large dining events (250pp seating capacity), informal and casual interaction*
6.3.5	Working Group Meeting Room (20-25 pp)	680	25	30	750	3	75	2,250	*Seats 20-25 people within space, w/ videoconf capabilities, also used for Working Group process seminar-style configuration, addresses need to accommodate dual projection and write simultaneously*
6.3.6	Hunt Gallery	620			5,000	1		5,000	
6.3.7	Dining space back-of-house/Catering staging	635			350	1	0	350	*Assumes space for food preparation area, food storage, and food reheat equipment*
6.3.8	Furniture storage	615			500	1		500	*Adjacent to Gallery, for events etc*
	Subtotal- IEI Meeting and Event Space						456	**17,250**	
	Grand Total - IEI Staff and Meeting & Event Spaces							**23,914**	

NCSU James B. Hunt Jr Library
Programming & Predesign Study

Outline Space Program of Proposed Facilities

Proposed Program v5 10/17/08

		Use Code	Capacity Occup.	nasf / Occup.	nasf / Space	No. of Spaces	Total Seats	Total nasf	Notes (red=to be reviewed)
7	**CHANCELLOR'S SPACES**								
7.1	**Institute for Non-Profits**								
7.1.1	Head	310	1	225	225	1	1	225	
7.1.2	Assistant Head	310	1	140	140	1	1	140	
7.1.3	Faculty/Staff	310	1	140	140	4	4	560	
	Subtotal- Institute for Non-Profits						0	**925**	
7.2	**Public Communication on Science and Technology**								
7.2.1	Head	310	1	225	225	1	1	225	
7.2.2	Assistant Head	310	1	140	140	1	1	140	
7.2.3	Faculty/Staff	310	1	140	140	4	4	560	
	Subtotal- Public Communication on Science and Technology						2	**925**	
7.3	**Commons for Advanced Human Inquiry**								
7.3.1	Faculty offices	310	1	140	140	14	14	1,960	
	Subtotal- Commons for Advanced Human Inquiry						0	**1,960**	
7.4	**Graduate Student Professional Development Center**								
7.4.1	Head	310	1	225	225	1	1	225	
7.4.2	Assistant Head	310	1	140	140	1	1	140	
7.4.3	Staff	310	1	140	140	4	4	560	
7.4.4	Consultation space	350	2	36	72	2	4	144	
	Subtotal- Graduate Student Professional Development Center						14	**1,069**	

NCSU James B. Hunt Jr Library
Programming & Predesign Study

Outline Space Program of Proposed Facilities — ***Proposed Program v5 10/17/08***

		Use Code	Capacity Occup.	nasf / Occup.	nasf / Space	No. of Spaces	Total Seats	Total nasf	Notes (red=to be reviewed)
7.5	**Shared Space**								
7.5.1	Reception	315			250	1	4	250	*Assume 1 administrative staff desk and waiting area for 8 people*
7.5.2	Kitchenette alcove	315	49	10	40	1	4	40	*Adjacent to reception and open meeting areas*
7.5.3	Focus booths	350	2	25	50	2	4	100	
7.5.4	Open meeting area (4 - 6 people)	350	6	25	150	2	12	300	
7.5.5	Enclosed meeting room (4 - 6)	350	6	25	150	2	12	300	
7.5.6	Work rooms	315	10	25	250	3	30	750	*Shared pool for all the units, used for project work, allows for pin-up, leaving of materials overnight*
7.5.7	Resource center	315			150	1	0	150	*Supplies, printers, copy/fax, mail, etc., as well as a locked cupboard/cabinet for each unit storage*
	Subtotal- Shared Space						2	**1,890**	
	Totals								
	Institute for Non-Profits Total							925	
	PCOST Total							925	
	Commons for Advanced Human Inquiry Total							1,960	
	Graduate Student Professional Development Center Total							1,069	
	Shared space Total							1,890	
	Grand Total Chancellor's Spaces							**6,769**	

NCSU James B. Hunt Jr Library
Programming & Predesign Study

Outline Space Program of Proposed Facilities

		Use Code	*Proposed Program v5 10/17/08* Capacity Occup.	nasf / Occup.	nasf / Space	No. of Spaces	Total Seats	Total nasf	Notes (red=to be reviewed)
8 BUILDING SUPPORT									
8.1 General Building Support Spaces									
Building Maintenance									
8.1.1	Custodial closets	X01			80	8		0	*Assume 8 closets of 80 sq ft (8' min. dim.), counted within building gross area*
8.1.2	Building Supply Storage	730			192	1		282	*Located near loading dock or service entrance and adjacent to service elevator, includes custodial supervisor's office and computer kiosk for employee check-in/check-out, training*
	Subtotal- Building Maintenance							**282**	
General Building Receiving and Handling									
8.1.3	Loading dock (platform)					3			*3-bay loading dock, two bays assigned for receiving of library materials, building supplies,and catering event, one bay assigned for processing of building garbage and recycling*
8.1.4	Recycling holding				150	1		0	*Exterior space- not counted within building area*
8.1.5	Distributed recyling collection points (Convenience Centers)	X04			30	5		150	*Assume 5 centers of 30 sq ft each, co-located with copy/print areas*
8.1.6	Mail room	310			50	1		50	*Secured, separate space on ground floor near loading dock. Exclusive use as a mail center.*
8.1.7	Facilities Staging	725			150	1		150	*For 6+ palettes at a time, additional surge space covered within gross area*
	Subtotal- General Building Receiving							**350**	
Campus Maintenance									
8.1.8	BAS control room	710			90	1		90	*Located on ground floor near satellite zone shop*
	Subtotal- Campus Maintenance							**90**	
Catering									
8.1.9	Dining space back-of-house/Catering staging	635			350	1	0	**350**	*Assumes space for food preparation area, food storage, and food reheat equipment*
	Subtotal- General Building Receiving and Handling							**1,072**	

NCSU James B. Hunt Jr Library
Programming & Predesign Study

Outline Space Program of Proposed Facilities

Proposed Program v5 10/17/08

		Use Code	Capacity Occup.	nasf / Occup.	nasf / Space	No. of Spaces	Total Seats	Total nasf	Notes (red=to be reviewed)
8.2	**Library Operations and Building Support**								
	Receiving and Handling								
8.2.1	IT workroom	310			1,000	1		1,000	*Secured space for the staging of computer equipment. Also includes space for builds and repairs*
8.2.2	Supply storage	730			400	1		400	*Compact shelving for storage of office supplies*
8.2.3	Collections staging	310			600	1		600	*Includes staging space to prep for processing to take place in technical services area*
8.2.4	Shipping and receiving area	310	2		1,000	1	2	1,000	*includes workstations for 2FTE, automated receiving workstation, photocopier, fax machine, mail sorting area and mailboxes, postage meter w/ 6 ft. of counter space, 6 ft. of counter space to package interlibrary loan returns, temporary holding area for two pallets of boxed deliveries, space to store one pallet of copier/printer paper, parking area for mail carts (internal deliveries)*
8.2.5	Book truck storage	315			610	1		610	*Assume 50% of book trucks can be parked simultaneously, with surge space elsewhere. Assume peak circulation load of 20K volumes and 16.5 volumes/sq ft.*
	Subtotal- Library Receiving and Handling							**3,610**	
	Library Maintenance								
8.2.6	Distributed storage areas	725			240	5		1,200	*For storage of materials, including furniture, etc. One located per floor*
8.2.7	Maintenance workshop/tool & small equipment storage	720			900	1	2	900	*For use of library maintenance staff, includes space for on-site repairs, staging area for surplus furniture and equipment, and 2 FTE workstations, and storage for hand tools, power tools, telephone sets, surge protectors, etc.*
8.2.8	Archive/file space	315			100	1		100	*Space for the storage of building plans, finish materials, furniture specs*
8.2.9	Security office & control station	710			80	1		80	*Main panel and PC workstation for software maintenance/monitor viewing (by both library security staff and security contract firm personnel)*
	Subtotal- Library Maintenance							**2,280**	

NCSU James B. Hunt Jr Library
Programming & Predesign Study

Outline Space Program of Proposed Facilities

		Use Code	*Proposed Program v5 10/17/08* Capacity Occup.	nasf / Occup.	nasf / Space	No. of Spaces	Total Seats	Total nasf	Notes *(red=to be reviewed)*
8.3	**IT server room**	715			1,000	1		**1,000**	*Allowance based on current; needs further definition. Assume specialized HVAC and fire suppression systems.*
	Subtotal - Library Operations and Building Support							**6,890**	
	Grand Total- Building Support							**7,962**	

NCSU James B. Hunt Jr Library
Programming and Pre-Design Study
Space Program of Proposed Facilities

COLLECTION AREA ANALYSIS

Proportional Reduction from 3/10/08 Library Collections Projections to 7/31/08 Breakdown of 47,500 Volumes on Open Shelving

Collection	2008 Existing All Vol.	2023 Projected 15 yr Growth	2023 Projected Total Coll.	2018 Projected Hunt Vol.	Est'd Shelving Units Required 2018: 2018 Est'd Linear Feet (Solid)	Assumed Working Capacity	2,018 Target Linear Ft	Assumed average vol/36" shelf	Shelves height lf/sfs	Volumes estim'd vol/sfs	2018 Projected sfs	Estimated Areas: Conventional Shelving Area (NASF)	ARS	Assumptions/Remarks
Reference Collection														
Reference Stacks				**2,000**	194	85%	**228**							*Near main service point, ideally along walls and integrated into background of space.*
Low shelving							**90**	21.0	9	54	**10**	**120**		*3 shelves high*
High shelving							**138**	21.0	18	107	**8**	**92**		*6 shelves high.*
Popular Reading Section														
Leisure Collection - Books				**1,400**	136	85%	**160**	31.0	9	79	**18**	**213**		*Assumes on low shelving, 3 shelves high. On entry level floor near comfortable reading areas.*
New Books Display				**250**	24	85%	**29**	31.0	18	158	**2**	**24**		*Has additional space for jacket display*
Current Periodicals Display - titles				**350**		100%		3.0	9	9	**39**	**467**		*3 sh high for ADA, 3 titles per shelf, 4' aisles. Assume hinged shelving with 6 mos of unbound stored behind current issue.*
Recent Unbound Issues (journals, magazines, newspapers)				**2,500**										*Breakdown not specified. See Current Periodicals Display for storage of recent unbound of displayed titles (350 titles at 6 issues would equal 2,100 vol.).*
									15	30	**17**	**175**		*Difference to be accommodated on flat shelving = 500 vol. Assume current newspapers on low units with flat shelves, 5 shelves high, 2 titles per shelf, ~3 items each, or 30 vol/sfs.*
Newspapers												60		*Allowance; mode of shelving and quantity of titles tbd. This is likely to reduce over time.*
Subtotal - Reference & Popular Reading Section				**6,500**							**93**	**1,151**	0	
Monographs - Total														
Engineering	175,682	77,632	253,314											
Textiles	20,619	10,280	30,899											
Physical Sciences	39,435	29,373	68,808											
Math & Stats	37,790	9,849	47,639											
Botany	8,775	2,120	10,895											
Total - Monographs	282,301	129,254	411,555	411,600	39,961	85%	47,013	31.0	18		2,612	26,902	0	*15 yr growth assumes 10% reduction in mongraphs years 6-10 and 35% reduction years 11-15.*
Monographs - 47.5K scheme				**37,500**	3,641	85%	**4,283**	31.0	18	184	**238**	**2,451**		*Assume provision for those in relevant subject areas, latest 5 years and high circulation. Location can be based on optimal design and utility of the space.*
Bound Journals														
Engineering	100,855	14,010	114,865											
Textiles	17,477	3,020	20,497											
Physical Sciences	65,648	10,926	76,574											
Math & Stats	23,347	5,226	28,573											
Botany	6,875	2,270	9,145											
	214,202	35,452	249,654	249,700	35,671	75%	47,562	21.0	18		2,642	27,216		*15 yr growth assumes a 10% reduction in serials years 1-5, a 90% reduction years 6-15.*
Bound Journals - 47.5K scheme				**3,500**	500	75%	**667**	21.0	18		**37**	**381**		*Assume provision for regularly consulted bound journals/magazines not available online. Location can be based on optimal design and utility of the space.*
Mongraphs and Bound Journals in Estimated ARS assuming 2M vols													9,623	*Assumes (4) 500K volume modules, each occupying a space measuring 178'x 54' based on manufacturer's preliminary estimate.*

NCSU James B. Hunt Jr Library
Programming & Predesign Study

Library staffing grows at current pace, with current percentage of part-time (e.g., student employees) versus full-time employees. Hunt Library has its own, distinct administration thereby duplicating some positions based on geographic separation from Hill Library

STAFFING PROJECTIONS- 10/17/08 Revision

	Existing 2008		*Projected 2020*					
Staff (by generic title and group)	*FT*	*PT*	*FT*	*Private Office*	*PT (FTE)*	*PT Headcou*	*PT Seats*	Notes/ Assumptions
Hunt Library Adminstrative	0	0	8	6	1	2	1	*Vice Provost/Director of Libraries and Admin Team remain in H but keep one office in Hunt. A Director and Associate Director Hunt Library and staff are added.*
Research and Collections Services	17	4	18	3	6	18	3	*Existing Textiles librarians plus one-half of RIS and Collection Mgmt librarians move to Hunt.*
Access and Delivery Services	2	0	22	3	0	0	0	*Existing Textiles support staff move to Hunt. Positions added t provide 24x7 services at Hunt while retaining service levels at*
Digital Library	14	2	20	3	2	4	2	*Existing DLI staff move to Hunt; additional positions staff new i tech services such as visualization etc. 24x7*
Information Technology	0	0	9	2	2	6	2	*Positions added to provide IT support at Hunt while retaining services at Hill*
Technical Services	41.5	3	42	7	5	15	6	*Existing departments of Acquisitions, Metadata & Cataloging n to Hunt*
Building Services	2	1	4	1	1	3	1	*Existing supervisor and receiving staff move to Hunt; additiona positions for distribution and building services*
								PT to FTE conversion rate varies depending on group
								Scenario is based on total FTE numbers in the Master Plan an subsequent edits and modifications throughout Phase I
Total Staff FTEs	76.5	10.0	123.0		17.0			
Total Seats	76.5	10.0	123.0	25			15.0	
Grand total (for sharing ratios)							**138.0**	*total number for sharing ratios, uses PT seat count as assump for PT headcount at any given moment*
Shared Space Allocation per NCSU space standards							**6900.0**	*50sf/person, including part-time employees*

Shared Spaces	*Sharing Ratios*	*No.of Spaces*	*Seats*	*Area*	*Total Area*	*N*
Focus booths	1/16	9.0	2.0	50.0	450	*35 - 70 sf, area @ 25nasf/pe*
Open meeting area (4 - 6 people)	1/32	5.0	6.0	150.0	750	
Enclosed meeting room (4 - 6)	1/32	5.0	4.0	100.0	500	
Small Meeting Room (4-8 ppl)	1/42	4.0	8.0	200.0	800	*192 - 2*
Med Meeting Room (8-12 ppl)	1/72	2.0	12.0	300.0	600	*320 - 5*
Large Meeting Room (12-20 ppl)	1/96	2.0	20.0	500.0	1000	*593 - 9*
XL Meeting Room (25 - 50ppl)	1/120	2.0	50.0	1250.0	2500	*936 - 25*
Subtotal - Shared Spaces					**6600**	

Staff Space per NCSU space standards

	FTE	Sq ft/FTE	Total
FT enclosed offices	25	140	3500
FT workstations	98.0	90	8820
FT conference services	123.0	50	6150
FT subtotal			18470
FT average			150
PT workstations	15.0	90	1350
PT conference services	15.0	50	750
PT subtotal			2100
PT average			140
Grand Total	138		20570
Overall Average			149

IEI Space per NCSU space standards

	FTE	Sq ft/FTE	
FT enclosed office- Director	1	225	225
FT enclosed office- Assistant Directors / Office Managers	5	140	700
FT workstations	20	90	1800
FT conference services	26	50	1300
FT subtotal			4025
FT average			155
PT workstations	15	90	1350
PT conference services	15	50	750
PT subtotal			2100
PT average			140
Grand Total	41		6125
Overall Average			149

Seating Summary, DEGW

		Total Seats	Total nasf	% Indiv.	% Collab.	Individ. Seats	Collab. Seats
1	PUBLIC/ COMMUNITY SPACES (not included in User Seating count)						
	Entry Zone						
	Building Lobby	40	2,400	50%	50%	20	20
	Lecture and Reception Area	30	600	0%	100%	0	30
	Press Conference Space	50	1,000	100%	0%	50	0
	Auditorium	400	6,000	100%	0%	400	0
	Seating Total- Entry Zone	520	10,000			470	50
	Exterior Spaces						
	Bounded exterior space, e.g. courtyard	65	3,900				
	Upper floor outdoor space, e.g. roof terrace	70	1,050				
	Staff/IEI upper floor outdoor space, e.g. roof terrace	20	600				
	Seating Total- Exterior Spaces	155	5,550				
	Note: provided for reference only. Not counted as Library seating since outside library envelope						
2	HUNT COMMONS & USER SPACES						
	Quiet reading room	120	4,200	100%	0%	120	0
	Learning Commons						
	Leisure reading area	32	1,440	75%	25%	24	8
	New periodicals/books display reading area	32	1,440	75%	25%	24	8
	Lounge seating	60	2,100	50%	50%	30	30
	Individual work stations	80	2,400	100%	0%	80	0
	Visualization stations with several monitors (1-2 pp)	20	400	50%	50%	10	10
	Collaborative work stations (4-6)	72	576	0%	100%	0	72
	Open group study areas (4-6 pp)	72	1,440	25%	75%	18	54
	Semi-private niches or banquettes (2-4 pp)	32	640	25%	75%	8	24
	Presentation practice rooms(6-8 pp)	24	600	0%	100%	0	24
	Gaming room (6-8 pp)	24	720	0%	100%	0	24
	Seating Subtotal- Learning Commons "Open Area"	448	11,756			194	254
	Group study rooms - 2-4p	160	4,000	0%	100%	0	160
	Group study rooms - 4-6p	144	3,600	0%	100%	0	144
	Seating Subtotal- Enclosed Commons Spaces (nasf)	304	7,600			0	304

Seating Summary, DEGW

	Total Seats	Total nasf	% Indiv.	% Collab.	Individ. Seats	Collab. Seats
Graduate Commons						
Lounge seating	24	840	50%	50%	12	12
Individual work stations	18	540	100%	0%	18	0
Visualization stations with several monitors (1-2 pp)	16	320	50%	50%	8	8
Collaborative work stations (4-6)	36	288	0%	100%	0	36
Open group study areas/tables (4-6 pp)	36	720	25%	75%	9	27
Semi-private niches or banquettes (2-4 pp)	24	480	25%	75%	6	18
Group study rooms - 2-4p	16	400	0%	100%	0	16
Group study rooms - 4-6p	24	600	0%	100%	0	24
Seating Subtotal- Graduate Commons Spaces (nasf)	194	4,188			53	141
Sky Lounge	100	1,500	50%	50%	50	50
Hunt Room	30	750	75%	25%	23	7
Quiet Distributed Reader Seating						
Quiet reader seating	73	2,555	100%	0%	73	0
Lounge seating	30	1,050	100%	0%	30	0
Napping chairs	5	175	100%	0%	5	0
Distributed work tables	80	2,800	100%	0%	80	0
Seating Subtotal- Distributed Reader Seating	188	6,580			188	0
Digital Media Lab						
Media work stations	15	450	75%	25%	11	4
Tables for project creation/assembly	8	240	25%	75%	2	6
Sharing spaces	12	300	0%	100%	0	12
Media production studio space	8	400	75%	25%	6	2
Seating Subtotal- Digital Media Lab (nasf)	43	1,390			19	24
Music/Recording Rooms	8	200	100%	0%	8	0

Seating Summary, DEGW

		Total Seats	Total nasf	% Indiv.	% Collab.	Individ. Seats	Collab. Seats
	Faculty Commons						
	Workstations	16	480	100%	0%	16	0
	Table seating	18	540	50%	50%	9	9
	Enclosed meeting rooms (8-10 pp)	10	250	0%	100%	0	10
	Focus booths for concentrated work	12	300	75%	25%	9	3
	Shared/bookable work rooms for faculty	8	1,120	100%	0%	8	0
	Lounge seating	12	192	100%	0%	12	0
	Seating Subtotal- Faculty Commons	76	2,882			54	22
	Seating Total- Hunt Commons & User Spaces	1511	41,046			709	802
3	LEARNING/COLLABORATION SPACES						
	Learning Studio	54	1,620	50%	50%	27	27
	Training Room	30	1,350	50%	50%	15	15
	Visualization Studios						
	Large Visualization Studio (30 pp)	30	600	0%	100%	0	30
	Small Visualization Studio (6 pp)	6	180	0%	100%	0	6
	Subtotal- Visualization Studios	36	780			0	36
	"Fishbowl" Classroom	20	400	50%	50%	10	10
	Seminar/Meeting Room	20	400	50%	50%	10	10
	Technology Sandbox space	24	900	50%	50%	12	12
	Seating Total - Learning Spaces	184	5,450			74	110
	GRAND TOTAL - Library Seating						
	Seating Total- Hunt Commons & User Spaces	1511	41,046			709	802
	Seating Total - Learning Spaces	184	5,450			74	110
	Seating Grand Total- All User Spaces	1695	46,496	46%	54%	783	912
	Average Sq Ft/Seat		27.4				

Seating Summary, DEGW

		Total Seats	Total nasf	% Indiv.	% Collab.	Individ. Seats	Collab. Seats
REFERENCE							
		Total Seats	*Total nasf*				
Hunt Library Seating Requirements- 2002 Library Master Plan		1,448	40,534	28.0	*Average Sqft / Seat*		
Adjustment for Integration of Textiles into Hunt Library		103					
Target Seating-2002 Library Master Plan		1,551					
Projected Seating Needs - 2002 Library Master Plan		1,551					
Hunt Library Seating- Building Program v4.1		1,695	46,496	27.4	*Average Sqft / Seat*		
Projected Seating Surplus		144		*Note: Does not include add'l 675 seat in public areas and outdoor spaces*			
Assumptions							
Assumed Campus Population- 2002 Library Master Plan	35,325						
Adjusted Campus Population	40,000						
Percent Difference	12%						

NCSU James B. Hunt Jr Library — *Program Cost Model Estimate*
Programming & Predesign Study - Scenario 6 (Program v4.0) — *August 7 ,2008*
Raleigh, North Carolina — *0498-1163.110*

Overall Summary

Scenario 6			
Building Costs	207,823 SF	355	73,836
Sitework, allow	1 LS		2,900
		Total - Scenario 6	76,736

**Note : Based on DEGW program summary v4.0 dated on 08/07/2008 for Scenario 6*

NCSU James B. Hunt Jr Library
Programming & Predesign Study - Scenario 6 (Program v4.0)
Raleigh, North Carolina

Program Cost Model Estimate
August 7 ,2008
0498-1163.110

Exclusions:

Owner supplied and installed furniture, fixtures and equipment

Loose furniture and equipment except as specifically identified

Security equipment , devices, cabling, testing/programming, etc. - Costs account for empty backboxes and conduit only

Audio visual equipment, cabling, testing/programming, etc - Costs account for empty backboxes and conduit only

Hazardous material handling, disposal and abatement

Compression of schedule, premium or shift work, and restrictions on the contractor's working hours

Design, testing, inspection or preconstruction management fees

Architectural and design fees

Assessments, taxes, finance, legal and development charges

Environmental impact mitigation

Builder's risk, project wrap-up and other owner provided insurance program

Land and easement acquisition

Cost Escalation (carried by NCSU)

Food Service Equipment

University's internal moving or relocation expenses

Automatic Retrieval System(ARS) and book shelving (included by NCSU in soft costs)

Temporary utilty consumption charges

High voltage transformers

Telecom network and data switches/equipment

Landscaping (by NCSU)

NCSU JAMES B. HUNT Jr.LIBRARY
RALEIG, NORTH CAROLINA
PROGRAMMING AND PREDESIGN COST STUDY - SCENARIO 6 (PROGRAM v4.0)

Space	Net Assignable	Grossing Factor	Gross Area	1.0 Foundations	2.0 Vertical Structure	3.0 Floor & Roof Structure	4.0 Exterior Cladding			5.0 Roofing & Waterproof	6.0 Interior Partitions			7.10 Floor Finishes	7.20 Ceiling Finishes	7.30 Wall Finishes	7.0 Sub-total Interior Finishes	8.0 Function Equipment & Specialties	9.0 Vertical Transportation	10.0 Plumbing	11.0 HVAC	12.0 Electrical	13.0 Fire Protection	Subtotal	General Conditions/General Requirements	Subcontractor P&P Bond	Construction Manger P&P Bond	Liability Insurance (CM & Subs)	CM fee	Design Contingency	GMP Contingency	Builder's Risk	Escalation	Total $ / SF	Total Cost
																									8.50%	1.25%	1.00%	1.10%	3.00%	10.00%	3.00%	0.32%	0.00%		
Scenario 6 - No IEI forum , High-Density Collections with Automated Retrieval System							*Exterior Ratio*	*$/SF wall*			*Partition Length Ratio*	*Floor Height*	*$/SF wall*																						
Building Cost Summary																																		
1 Public/Community Spaces	6,865	1.52	**10,459**	6.50	18.00	34.00	*0.60*	*105.00*	63.00	8.00	*0.040*	*20.00*	*20.00*	16.00	35.00	15.00	8.00	58.00	15.00	13.00	9.00	50.00	40.00	4.75	**335.25**	28.50	4.55	3.68	4.09	11.28	38.74	12.78	0.33		**439.20**	**$4,594,000**
1a Auditorium/Lecture Hall	6,000	1.52	**9,142**	6.50	24.00	56.00	*0.65*	*105.00*	68.00	8.00	*0.035*	*25.00*	*30.00*	26.00	10.00	20.00	13.13	43.13	35.00	13.00	9.00	60.00	45.00	4.75	**398.38**	33.86	5.40	4.38	4.86	13.41	46.03	15.19	0.39		**521.90**	**$4,771,000**
2 Hunt Commons & User Spaces	47,455	1.52	**72,302**	6.50	12.00	34.00	*0.45*	*105.00*	47.00	8.00	*0.065*	*12.00*	*15.00*	12.00	7.00	4.00	0.78	11.78	8.00	13.00	9.00	47.50	30.00	4.75	**243.53**	20.70	3.30	2.68	2.97	8.20	28.14	9.29	0.24		**319.05**	**$23,068,000**
3 Learning/Collaboration Spaces	5,450	1.52	**8,304**	6.50	12.00	34.00	*0.45*	*105.00*	47.00	8.00	*0.065*	*12.00*	*15.00*	12.00	7.00	4.00	0.78	11.78	8.00	13.00	9.00	47.50	30.00	4.75	**243.53**	20.70	3.30	2.68	2.97	8.20	28.14	9.29	0.24		**319.05**	**$2,649,000**
4 Library Staff Space	20,974	1.52	**31,956**	6.50	12.00	34.00	*0.45*	*105.00*	47.00	8.00	*0.065*	*12.00*	*15.00*	12.00	7.00	4.00	0.78	11.78	8.00	13.00	9.00	47.50	30.00	4.75	**243.53**	20.70	3.30	2.68	2.97	8.20	28.14	9.29	0.24		**319.05**	**$10,196,000**
5 Collections																																		
5a Traditional / Compact Shelving	4,868	1.52	**7,417**	6.50	12.00	42.00	*0.45*	*105.00*	47.00	8.00	*0.030*	*12.00*	*15.00*	5.00	2.00	3.00	0.72	5.72	4.00	13.00	9.00	47.50	35.00	4.75	**239.47**	20.35	3.25	2.63	2.92	8.06	27.67	9.13	0.24		**313.72**	**$2,327,000**
Compact Shelving	0	1.54	**0**																															**$0**
5b High Density Storage Module	9,623	1.00	**9,623**	12.00	20.00	75.00	*2.00*	*85.00*	170.00	20.00	*0.010*	*60.00*	*30.00*	18.00	2.00	3.00	1.20	6.20	3.00	13.00	9.00	65.00	45.00	10.00	**466.20**	39.63	6.32	5.12	5.69	15.69	53.87	17.78	0.46		**610.76**	**$5,877,000**
6 Institute for Emerging Issues																																		
6a Staff Space Workspace	6,494	1.52	**9,894**	6.50	12.00	34.00	*0.45*	*105.00*	47.00	8.00	*0.065*	*12.00*	*15.00*	12.00	7.00	4.00	0.78	11.78	8.00	13.00	9.00	47.50	30.00	4.75	**243.53**	20.70	3.30	2.68	2.97	8.20	28.14	9.29	0.24		**319.05**	**$3,157,000**
6b Forum Spaces - Auditorium	0	0.00	**0**	6.50	25.00	65.00	*0.70*	*105.00*	74.00	8.00	*0.035*	*28.00*	*35.00*	34.00	15.00	25.00	14.70	54.70	40.00	13.00	9.00	65.00	45.00	4.75	**443.95**	37.74	6.02	4.88	5.42	14.94	51.30	16.93	0.44		**581.62**	**$0**
6c Forum Spaces - Dining	0	0.00	**0**	6.50	17.50	35.00	*0.55*	*105.00*	58.00	8.00	*0.035*	*24.00*	*20.00*	17.00	15.00	10.00	4.20	29.20	3.00	13.00	9.00	55.00	40.00	4.75	**295.95**	25.16	4.01	3.25	3.61	9.96	34.19	11.28	0.29		**387.70**	**$0**
6d Forum Spaces - Conference	0	0.00	**0**	6.50	12.00	35.00	*0.45*	*105.00*	47.00	8.00	*0.055*	*12.00*	*15.00*	10.00	7.00	6.00	6.60	19.60	10.00	13.00	9.00	50.00	35.00	4.75	**259.85**	22.09	3.52	2.85	3.17	8.74	30.02	9.91	0.26		**340.41**	**$0**
6e IEI Meeting and Event Spaces	12,250	1.52	**18,664**	6.50	17.50	35.00	*0.60*	*105.00*	63.00	8.00	*0.050*	*12.00*	*30.00*	18.00	7.00	9.00	6.00	22.00	8.00	13.00	9.00	50.00	35.00	4.75	**289.75**	24.63	3.93	3.18	3.54	9.75	33.48	11.05	0.29		**379.60**	**$7,085,000**
6f Gallery	5,000	1.52	**7,618**	6.50	17.50	35.00	*0.60*	*105.00*	63.00	8.00	*0.050*	*12.00*	*30.00*	18.00	7.00	9.00	6.00	22.00	8.00	13.00	9.00	50.00	35.00	4.75	**289.75**	24.63	3.93	3.18	3.54	9.75	33.48	11.05	0.29		**379.60**	**$2,892,000**
7 Chancellor's Spaces	6,769	1.52	**10,313**	6.50	12.00	34.00	*0.45*	*105.00*	47.00	8.00	*0.065*	*12.00*	*15.00*	12.00	7.00	4.00	0.78	11.78	8.00	13.00	9.00	47.50	30.00	4.75	**243.53**	20.70	3.30	2.68	2.97	8.20	28.14	9.29	0.24		**319.05**	**$3,290,000**
8 Building Support	7,962	1.52	**12,131**	6.50	12.00	34.00	*0.45*	*105.00*	47.00	8.00	*0.065*	*12.00*	*30.00*	23.00	1.25	0.50	0.78	2.53	10.00	13.00	9.00	47.50	30.00	4.75	**247.28**	21.02	3.35	2.72	3.02	8.32	28.57	9.43	0.24		**323.95**	**$3,930,000**
Subtotal Building Costs	***139,710***	***1.49***	***207,823***	*6.75*	*13.90*	*37.28*	*0.56*	*104.07*	*56.45*	*8.56*	*0.06*	*15.20*		*14.25*	*7.80*	*5.60*	*2.36*	*15.76*	*9.28*	*13.00*	*9.00*	*49.30*	*32.67*	*4.99*	***271.19***	*23.05*	*3.68*	*2.98*	*3.31*	*9.13*	*31.34*	*10.34*	*0.27*		***355.28***	**$73,836,000**

Breakdown by Program Type	GSF	$/GSF	Total $
Library	162,024	$338	**$54,825,000**
IEI	36,176	$363	**$13,134,000**
High Density Storage Module	9,623	$611	**$5,877,000**
Sub-total building costs			**$73,836,000**

Sitework, allow					
9	Book Collection System				
9a	*Traditional/Open Shelving, allow (100K Vol of books)*	0	LS	**0.00**	***Included in soft costs***
9b	*Compact Shelving - also include traditional shelving for 100K Volumes, allow*	0	LS	**0.00**	***Included in soft costs***
9c	*Auto-Retrieval System for 2M volumes - also include traditional shelving for 100K Volumes, allow*	0	LS	**0.00**	***Included in soft costs***
10	Site Preparation and demo, allow	1	LS	**1,250,000.00**	**$1,250,000**
11	External Finish Sitework - allow	15,000	SF	**60.00**	**$900,000**
12	Site Utilities (50' distance to tie-in points, allow)	1	LS	**750,000.00**	**$750,000**
Subtotal Sitework Costs					**$2,900,000**
Total Building & Sitework Costs - SCENARIO 6					**$76,736,000**

BY NCSU

LEED for New Construction v2.2
Registered Project Checklist

Project Name:
Project Address:

Yes	?	No		
7	6	1	**Sustainable Sites**	14 Points

Y			Prereq 1	**Construction Activity Pollution Prevention**	Required
	1		Credit 1	**Site Selection**	1
1			Credit 2	**Development Density & Community Connectivity**	1
		1	Credit 3	**Brownfield Redevelopment**	1
	1		Credit 4.1	**Alternative Transportation**, Public Transportation Access	1
1			Credit 4.2	**Alternative Transportation**, Bicycle Storage & Changing Rooms	1
	1		Credit 4.3	**Alternative Transportation**, Low-Emitting & Fuel-Efficient Vehicles	1
1			Credit 4.4	**Alternative Transportation**, Parking Capacity	1
1			Credit 5.1	**Site Development,** Protect or Restore Habitat	1
1			Credit 5.2	**Site Development,** Maximize Open Space	1
	1		Credit 6.1	**Stormwater Design,** Quantity Control	1
	1		Credit 6.2	**Stormwater Design,** Quality Control	1
1			Credit 7.1	**Heat Island Effect,** Non-Roof	1
1			Credit 7.2	**Heat Island Effect,** Roof	1
	1		Credit 8	**Light Pollution Reduction**	1

Yes	?	No		
2	3		**Water Efficiency**	5 Points

1			Credit 1.1	**Water Efficient Landscaping**, Reduce by 50%	1
	1		Credit 1.2	**Water Efficient Landscaping**, No Potable Use or No Irrigation	1
	1		Credit 2	**Innovative Wastewater Technologies**	1
1			Credit 3.1	**Water Use Reduction**, 20% Reduction	1
	1		Credit 3.2	**Water Use Reduction**, 30% Reduction	1

10	3	9	**Energy & Atmosphere**	17 Points

Y	Prereq 1	**Fundamental Commissioning of the Building Energy Systems**	Required
Y	Prereq 2	**Minimum Energy Performance**	Required
Y	Prereq 3	**Fundamental Refrigerant Management**	Required

*Note for EAc1 All LEED for New Construction projects registered after June 26th, 2007 are required to achieve at least two (2) points under EAc1.

7	2	6	Credit 1	**Optimize Energy Performance**	1 to 10
				10.5% New Buildings or 3.5% Existing Building Renovations	1
				14% New Buildings or 7% Existing Building Renovations	2
				17.5% New Buildings or 10.5% Existing Building Renovations	3
				21% New Buildings or 14% Existing Building Renovations	4
				24.5% New Buildings or 17.5% Existing Building Renovations	5
				28% New Buildings or 21% Existing Building Renovations	6
				7 31.5% New Buildings or 24.5% Existing Building Renovations	7
				35% New Buildings or 28% Existing Building Renovations	8
				38.5% New Buildings or 31.5% Existing Building Renovations	9
				42% New Buildings or 35% Existing Building Renovations	10
		3	Credit 2	**On-Site Renewable Energy**	1 to 3
				2.5% Renewable Energy	1
				7.5% Renewable Energy	2
				12.5% Renewable Energy	3
1			Credit 3	**Enhanced Commissioning**	1
1			Credit 4	**Enhanced Refrigerant Management**	1
	1		Credit 5	**Measurement & Verification**	1
1			Credit 6	**Green Power**	1

continued...

Yes	?	No		
4	4	5	**Materials & Resources**	13 Points

Y			Prereq 1	**Storage & Collection of Recyclables**	Required
		1	Credit 1.1	**Building Reuse**, Maintain 75% of Existing Walls, Floors & Roof	1
		1	Credit 1.2	**Building Reuse**, Maintain 100% of Existing Walls, Floors & Roof	1
		1	Credit 1.3	**Building Reuse**, Maintain 50% of Interior Non-Structural Elements	1
1			Credit 2.1	**Construction Waste Management**, Divert 50% from Disposal	1
	1		Credit 2.2	**Construction Waste Management**, Divert 75% from Disposal	1
		1	Credit 3.1	**Materials Reuse**, 5%	1
		1	Credit 3.2	**Materials Reuse**,10%	1
1			Credit 4.1	**Recycled Content**, 10% (post-consumer + ½ pre-consumer)	1
	1		Credit 4.2	**Recycled Content**, 20% (post-consumer + ½ pre-consumer)	1
1			Credit 5.1	**Regional Materials**, 10% Extracted, Processed & Manufactured Regional	1
	1		Credit 5.2	**Regional Materials**, 20% Extracted, Processed & Manufactured Regional	1
	1		Credit 6	**Rapidly Renewable Materials**	1
1			Credit 7	**Certified Wood**	1

Yes	?	No		
9	4	2	**Indoor Environmental Quality**	15 Points

Y		Prereq 1	**Minimum IAQ Performance**	Required
Y		Prereq 2	**Environmental Tobacco Smoke** (ETS) **Control**	Required
1		Credit 1	**Outdoor Air Delivery Monitoring**	1
1		Credit 2	**Increased Ventilation**	1
1		Credit 3.1	**Construction IAQ Management Plan**, During Construction	1
1		Credit 3.2	**Construction IAQ Management Plan**, Before Occupancy	1
1		Credit 4.1	**Low-Emitting Materials**, Adhesives & Sealants	1
1		Credit 4.2	**Low-Emitting Materials**, Paints & Coatings	1
1		Credit 4.3	**Low-Emitting Materials**, Carpet Systems	1
1		Credit 4.4	**Low-Emitting Materials**, Composite Wood & Agrifiber Products	1
1		Credit 5	**Indoor Chemical & Pollutant Source Control**	1
	1	Credit 6.1	**Controllability of Systems**, Lighting	1
	1	Credit 6.2	**Controllability of Systems**, Thermal Comfort	1
	1	Credit 7.1	**Thermal Comfort**, Design	1
	1	Credit 7.2	**Thermal Comfort**, Verification	1
	1	Credit 8.1	**Daylight & Views**, Daylight 75% of Spaces	1
	1	Credit 8.2	**Daylight & Views**, Views for 90% of Spaces	1

Yes	?	No		
1	4		**Innovation & Design Process**	5 Points

	1		Credit 1.1	**Innovation in Design**: Provide Specific Title	1
	1		Credit 1.2	**Innovation in Design**: Provide Specific Title	1
	1		Credit 1.3	**Innovation in Design**: Provide Specific Title	1
	1		Credit 1.4	**Innovation in Design**: Provide Specific Title	1
1			Credit 2	**LEED® Accredited Professional**	1

Yes	?	No		
33	24	17	**Project Totals (pre-certification estimates)**	69 Points

Certified: 26-32 points, **Silver:** 33-38 points, **Gold:** 39-51 points, **Platinum:** 52-69 points

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David Zonderman	Department of History, Institute for Non-Profits

Apologies for any unintentional errors and omissions

User Participants, Faculty, Staff, Students

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Christopher Alexander, Computer Science
Ana Camacho, CALS UROP Science
George Chering, Engineering
Chris Coxen, Natural Resources
Karen Creech, Landscape Architecture
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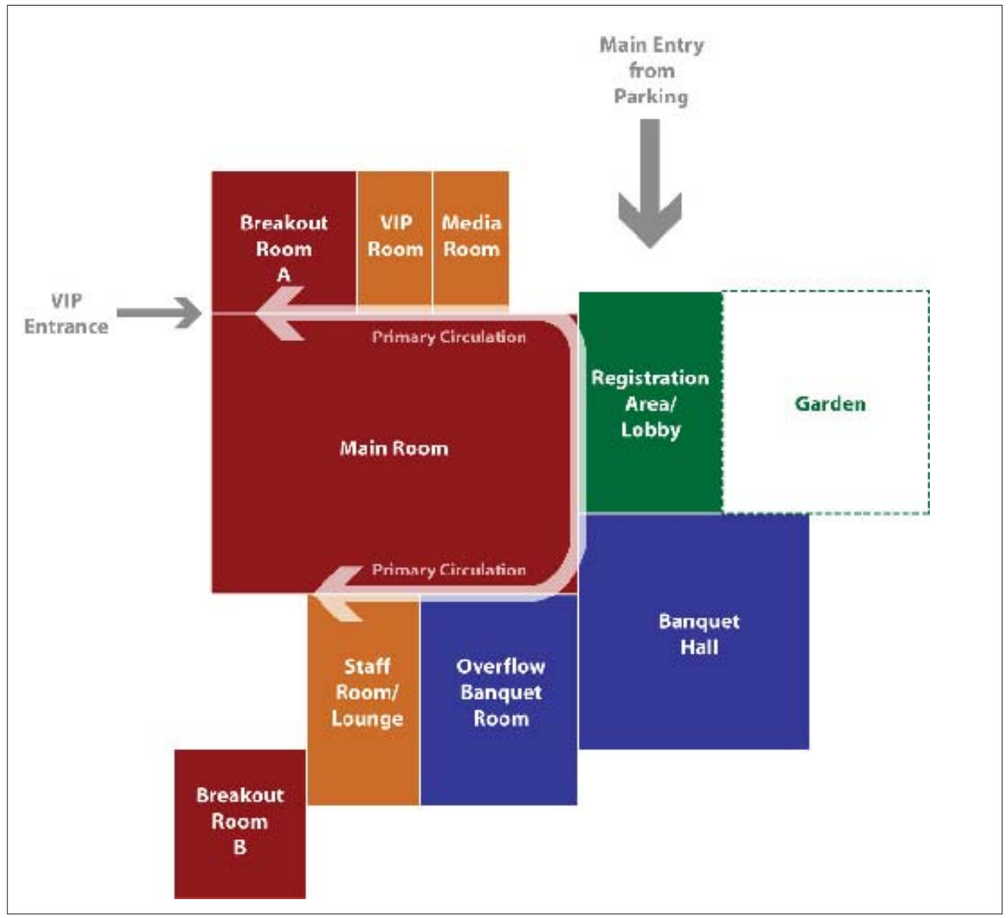
Apologies for any unintentional errors and omissions

IEI Forum
11-12 February 2008
McKimmon Center
North Carolina State University

VENUE



SITE

PROGRAM

- Main Room: 1050 seats
- Banquet Hall: 728 seats
- Overflow Banquet Room: 100 seats
- Breakout Room A: 200 seats
- Breakout Room B: 200 seats
- Registration Area/Lobby
- Staff Room/Lounge
- VIP Room
- Food Staging Area
- Media Room

EVENT FORMAT

Over the course of two days, the IEI Forum hosted a range of speakers to engage the audience of 1200 people in a conversation on the topic of energy policy and environmental sustainability in North Carolina and around the nation. The majority of talks were held in the Main Room, which had a capacity of more than 1000 seats. For more focused discussions on Education and Science, Finance, and Market Strategy, the audience was invited to 3 separate break-out meetings. Two were conducted in adjacent rooms that each held 200 seats, while the third meeting remained in the Main Room.

Capacity issues were made apparent during lunchtime. Due to the primary lunch room's capacity of only 728 seats, there were two additional rooms available. The second room had a similar table and
seating arrangement and had a direct live feed to the keynote speaker. The third lunch venue, however, was the Main Room. Forum attendees who chose to remain in the Main Room also had access to a direct live feed, but were provided with brown bag lunches.

OBSERVATIONS

Registration Area/Lobby

This was one of the most dynamic places to be found in the IEI Forum venue. It was highly congested, crowded with Forum attendees seeking a space apart from the Main Room. The room was notable for a number of reasons:

- It served as the "living room" for the entire event. The room provided a more relaxed, informal atmosphere in comparison with the Main Room.

- Many spontaneous interactions took place, as longtime friends and acquaintances ran into each other, using the time to catch up.

- Many conference attendees also used the space as a place to catch up on other tasks , with lounge chairs, sofas, side tables, and wireless access making the room an inviting place for work.

- Technology allowed conference attendees to simultaneously engage in conversation and remain connected to the events in the Main Room. A plasma television screen was set up, allowing many conference-goers to watch a speech being given in a room 10 feet away.

- Proximity to an outdoor garden allowed for attendees to step outside for phone calls and cigarette breaks

The Main Room

This was the primary venue for the Forum. A large multi-purpose room with flat flooring, there were more than 1000 seats available for attendees.

Lunch Facilities

The mid-day meal was the time when it was most apparent that the IEI Forum was starting to outgrow its current space. The IEI places a high premium on providing a more formal, plated lunch, creating certain implications for the space needed to accommodate such a meal. To adequately feed the 1200+ conference attendees, the meal took place within three roms:

- Main banquet room
This room, seating approximately 730 attendees, is the primary space for lunch on both days of the forum. Tables were set in long rows perpendicular to the front wall, from which the keynote speaker made his addres.

- Overflow banquet room
The overflow banquet room provided seating for an additional 100 conference attendees and was configured in a similar manner to the main banquet room. A live feed of the keynote speech was projected onto a large screen at the head of the room.

- Main Room
With an estimated 200-300 people unable to be seated in either of the banquet rooms, the Main Room was also used for serving lunch. The atmosphere was decidedly more casual, with brown bag lunches served and conference-goers re-configuring the loose seating to better facilitate conversation.

Non-Public Facilities

- Staff Room/Lounge
This room was established as a home base and command center for the 10 core IEI staffers and the 60 volunteers who help throughout the course of the two-day event.

- VIP room
Facilities were provided to host the variety of speakers and guests, allowing them to have a refuge before and after their speaking engagements, as well as easy access to the dedicated VIP entrance to the McKimmon Center

OBSERVED ACTIVITIES

- Cell phone conversations

- Group conversations

- Work on laptop computers

- Review papers

- Lounge/take a break

- Television interview

- Acquire food

- Snack

- Check blackberry

- Stand guard

- Attend to the registration desk

- Wander

- Watch event on plasma screen

- Eat lunch

Collection Estimation Tool - Revision 5.0 - Input Collection Percentage Data to Estimate Number of Required Bi
North Carolina State University - 110% Books (1.0" Thick)

Total Volumes in Collection					2,000,000
Primary Format Classification	Equivalent Linear Shelf Feet	Calculated # of Items	Growth - Equivalent Linear Shelf Feet	Growth - Calculated # of Items	Total Calculated # of Items
Books	58,824	588,240	52,100	521,000	1,109,240
Volume Thickness (inches)					
Bound Journals	41,459	290,213	83,507	584,547	874,760
Video Cassettes					
Reel to Reel Tapes					
Microfilm Reels					
Prints & Photos in Cabinets					
Oversize Books					
Microfiche Sheets (900 per inch)					
Records					
Archive Boxes (15x12x10 box)					
Gov. Doc.	1,600	16,000			16,000

Table 1. Breakdown of 47,500 Volumes on Open Shelving – Hunt Library

Type of Material	Total volumes	Location considerations
Books (monographs) in relevant subject areas	37,500	Flexible based on space design.
Other volumes, including print Reference, Journals, and Popular Reading	10,000	Reference should be near primary service point, could be along walls. Journals and Popular materials near reader seating.
Totals	**47,500**	

Estimates for an Opening Day Collection (December 2012) in the Hunt Library: Encompassing Subject Priorities and Needs for the Overall Collection
July 14, 2008

Important notes:

- D.H. Hill is beyond functionally full;
- LSS is 100% full and overflowing with materials stored on the floor;
- Our lease agreement with Duke requires us to exit between 2013 and 2015; and
- Bound volume equivalents are calculated at 10 monographs per linear foot and 7 serials per linear foot based on local sampling, a study conducted at MIT, and standard reference works for library buildings.

Table 1: Opening Day Hunt Library Collection Needs in Linear Feet and Volumes

	Number of Items	Linear Feet	Bound Volume Equivalents
Monographs	521,006	52,101	521,006
Serials	290,213	41,459	290,213
Open Shelving	100,000	10,857	100,000
Maps	21,230	663	6,634
Architectural Drawings	193,920	6,060	60,600
Manuscript/Archival Boxes	13428	13,428	134,280
Government Documents	16,000	1,600	16,000
Microfiche and Microfilm	3,585,285	609	6,095
Totals	**4,741,082**	**126,777**	**1,134,828**

Table 2: Per Volume ARS Cost Estimates

Number of Volumes	Estimated Price	Cost Per Volume
1.0M vols	$4,750,000	$4.75
1.5M vols	$6,350,000	$4.23
2.0M vols	$7,950,000	$3.97

The current composition of the NCSU Libraries collection, estimated growth of the collection, and contextual changes since completion of the Master Plan dictate the need for an automated retrieval system (ARS) with capacity of at least two million volumes. The introduction of ARS technology provides the opportunity to accommodate the needs of the entire collection, phase out the temporary (and expensive) leased space at the Duke Library Service Center (LSC), accommodate overflow from Libraries Satellite Shelving (LSS), and provide collections capacity assumed in the Master Plan (including future phases of the Master Plan and a then-planned addition to Library Satellite Shelving).

Providing only a one-million-volume ARS as of December 2012 would result in the ARS being full on opening day, with no room to accommodate additional materials, and leaving only 3-5 years of growth space at D.H. Hill. Table 1 documents the opening-day collection needs required of the Hunt Library in linear feet and volume equivalents – including subject materials most relevant to the research and teaching activities on Centennial Campus (engineering, textiles, plant toxicology, and physical science collections), growth of the collection from 2008 to December 2012, materials from the Duke LSC, and overflow from Satellite.

Current Composition and Estimated Growth of the NCSU Libraries' Print Collections (updated as of February 26, 2008)

This report includes a series of charts documenting two main categories of data. The first series of tables (1-3) summarizes the overall composition and growth of the print collections in the NCSU Libraries. Growth scenarios include a number of assumptions regarding the growth of electronic only material. The scenarios assumptions are included with each table.

The second set of tables (4-5) includes the current print composition and growth of print collections in subject areas potentially associated with the Hunt Library. The final set of tables (6-7) includes information on currently available growth space for collections and a summary of online journal backfile packages with print equivalent volumes.

Overall Print Composition and Growth

Table 1: Overall Composition of the Print Collections

	Monographic vols (excluding GovDocs)	Serials vols (excluding GovDocs)	GovDocs vols (excluding Microforms + Maps)	Manuscript/ Archives	Totals
DH Hill	993,751	458,752	215,198		**1,667,701**
Textiles	20,619	17,477			**38,096**
VetMed	24,055	39,701			**63,756**
NRL	24,229	14,212	4		**38,445**
Design	34,647	5,646	1		**40,294**
LSS	226,326	254,540	597		**481,463**
Duke LSC	1,614	622	4		**2,240**
Working Collections	41,391	4,491	1		**45,811**
Special Collections	19,729	4,660	2	133,294 (19,042 lf.)	**157,685**
Totals	**1,386,361**	**800,029**	**215,807**	**133,294**	**2,535,491**

Table 2: Average Annual Growth of Print Collections (Most Recent 3 Years)

	Growth of Monographic volumes per year	Growth of Serials volumes per year	Growth of Gov Docs volumes per year	SCRC Linear Feet Converted to Volumes	Total volume growth per year
Total	**46,800**	**15,000**	**3,200**	**5,600**	**69,800**

Table 3: Five to Twenty Five Year Growth Projections with No Reductions in Serials, Gov. Docs., or Monographs

	Monographs	Serials	Gov Docs	Manuscripts/Arch.	Total
Five Year Total	234,000	75,000	16,000	28,000	**353,000**
Ten Year Total	468,000	150,000	32,000	56,000	**706,000**
Fifteen Year Total	702,000	225,000	48,000	84,000	**1,059,000**
Twenty Year Total	936,000	300,000	64,000	112,000	**1,412,000**
Twenty-Five Year Total	1,170,000	375,000	80,000	140,000	**1,765,000**

Table 3A: Five Year Growth with a 20% reduction in Serials and Gov Docs and 20% increase in SC (2013)

	Monographs	Serials	Gov Docs	Manuscripts/Arch.	Total
Five Tear Total	234,000	60,000	14,400	33,600	**342,000**

Table 3B: Ten Year Growth with 90% reduction in Serials and Gov Docs in Years 6-10, 10% reduction in Monographs in Years 6-10, and 20% increase in SC (2018)

	Monographs	Serials	Gov Docs	Manuscripts/Arch.	Total
Ten Year Total	444,600	67,500	16,000	68,600	**596,700**

Table 3C: Fifteen Year Growth with 90% reduction in Serials and Gov Docs in Years 6-15, 10% reduction in Monographs in Years 6-10, 35% reduction in Monographs in Years 11-15, and 20% increase in SC (2023)

	Monographs	Serials	Gov Docs	Manuscripts/Arch.	Total
Fifteen Year Total	596,700	75,000	17,600	103,600	**792,900**

Table 3D: Twenty Year Growth with 20% reduction in Serials and Gov Docs in Years 1-5, 90% reduction in Serials and Gov Docs in Years 6-10, 95% reduction in Serials and Gov Docs in Years 11-15, 10% reduction in Monographs in Years 6-10, 35% reduction in Monographs in Years 11-15, 50% reduction in monographs in Years 16-20, and 20% increase in SC (2028)

	Monographs	Serials	Gov Docs	Manuscripts/Arch.	Total
Twenty Year Total	713,700	78,750	30,200	138,600	**961,250**

Hunt Library Subject Areas Print Collection and Growth

Table 4: Current Print Collection in Potential Hunt Library Subject Areas

Collection	Current # monographic volumes	Current # Serial volumes	Total Current # of volumes in Collection
Engineering (Excluding Textiles)	175,682	100,855	276,537
Textiles	20,619	17,477	38,096
Physical Sciences	39,435	65,648	105,083
Math & Stats	37,790	23,347	61,137
Botany	8,775	6,875	15,650
Totals	**282,301**	**214,202**	**496,503**

Table 5: Average Growth Scenarios in Potential Hunt Library Subject Areas

Collection	Projected Annual Monograph Growth	Projected Annual Serials Growth	Total Projected Annual Growth	Projected 15 Year Monograph Growth	Projected 15 Year Serials Growth	Total Projected 15 Year Growth*
Engineering (Excluding Textiles)	6,089	2,547	8,636	77,632	14,010	91,642
Textiles	806	549	1,355	10,280	3,020	13,300
Physical Sciences	2,304	1,987	4,290	29,373	10,926	40,299
Math & Stats	773	950	1,723	9,849	5,226	15,076
Botany	166	413	579	2,120	2,270	4,389
Totals	**10,138**	**6,446**	**16,583**	**129,253**	**35,453**	**164,706**

* Fifteen Year growth assumes a 10% reduction in serials years 1-5, a 90% reduction years 6-15, a 10% reduction in monographs years 6-10, and a 35% reduction years 11-15 (2023).

Appendix A: Call Number Details for Broad Potential Hunt Library Subject Areas

Engineering	Physical Sciences	Math	Botany
HF5548-HF5548.69	QD1-QD9999	QA1-QA9999	QK1-QK9999
Q300-Q9999	QC1-QC9999		
QA71-QA100	GA1-GA9999		
QA801-QA9999	GB1-GB650		
QC120-716	GC1-GC9999		
S671-S720	QE1-QE9999		
SF486	GF51-GF95		
SF91-SF93	GE1-GE9999		
T1-TZ9999	HC79-HC80		
Z102.5-Z104	K3581-K3600		
	QH1-QH278		

Appendix B: Current Space and Backfile Volume Equivalents

Table 6: Print Shelving Capacity

	Total Capacity	Remaining Capacity to 100% – Linear Feet	Remaining Capacity to 100% - Volumes
DH Hill – Main Stacks	216,246 linear feet	30,274	211,921
LSS		780	5,460
Duke LSC		500	3,500
SCRC Vault		1,124	7,889
Totals		**32,678**	**228,770**

Table 7: Online Journal Backfiles with Print Volume Equivalents

	Online Backfile Packages	# of Titles With Print Counterparts	# of Print Volume Equivalents
Totals	62	2,257	51,000